Installation and Reference for NETGEAR PS111W Print Sever

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- This device must accept any interference received, including interference that may cause undesired operation.

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- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

Consult the dealer or an experienced radio/TV technician for help.

EN 55 022 Declaration of Conformance

This is to certify that the NETGEAR Model PS100 series Print Sever is shielded against the generation of radio interference in accordance with the application of Council Directive 89/336/EEC, Article 4a. Conformity is declared by the application of EN 55 022
Class B (CISPR 22).

Bestätigung des Herstellers/Importeurs

Es wird hiermit bestätigt, daß das Model PS100 series Print Sever gemäß der im BMPT-AmtsblVfg 243/1991 und Vfg 46/1992 aufgeführten Bestimmungen entstört ist. Das vorschriftsmäßige Betreiben einiger Geräte (z.B. Testsender) kann jedoch gewissen Beschränkungen unterliegen. Lesen Sie dazu bitte die Anmerkungen in der Betriebsanleitung.
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Certificate of the Manufacturer/Importer

It is hereby certified that the Model PS100 series Print Sever has been suppressed in accordance with the conditions set out in the BMPT-AmtsblVfg 243/1991 and Vfg 46/1992. The operation of some equipment (for example, test transmitters) in accordance with the regulations may, however, be subject to certain restrictions. Please refer to the notes in the operating instructions.
Federal Office for Telecommunications Approvals has been notified of the placing of this equipment on the market and has been granted the right to test the series for compliance with the regulations. Compliance with the applicable regulations is dependent upon the use of shielded cables. It is the responsibility of the user to procure the appropriate cables.

Voluntary Control Council for Interference (VCCI-B) Statement

This is a Class B product based on the standard of the Voluntary Control Council for Interference from Information Technology Equipment (VCCI). If this is used near a radio or television receiver in a domestic environment, it may cause radio interference. Install and use the equipment according to the instruction manual.

Customer Support

For assistance with installing and configuring your NETGEAR system or with post-installation questions or problems, contact your point-of-purchase representative.
To contact customer support or to purchase additional copies of this document and publications for other NETGEAR products, you can contact NETGEAR at the following numbers:

- *Australi**a:*** 1800-142-046
- ***Austria:*** 00800-06384327 (008000-NETGEAR)
- ***Canada:*** 888-NETGEAR
- ***France:*** 0800-90-2078
- ***Germany:*** 00800-06384327 (008000-NETGEAR)
- ***Japan:*** 0120-66-5402
- ***Korea:*** 00308-11-0319
- ***New Zealand:*** 0800-444-626
- ***Sweden:*** 020-790086
- ***Switzerland:*** 00800-06384327 (008000-NETGEAR)
- ***United Kingdom:*** 0171-571-5120
- ***United States:*** 888-NETGEAR

Internet/World Wide Web

NETGEAR maintains a World Wide Web Home Page that you can access at the universal resource locator (URL) "http://www.NETGEAR.com". A direct connection to the Internet and a Web browser such as Internet Explorer or Netscape are required.

Preface

Congratulations on your purchase of the NETGEAR Model PS100 series Print Sever.
Supporting multiple protocols and operating systems, these print servers provide an effective solution for networked PCs to connect to the same printer, processing and trafficking printing requests to any parallel device. These print servers are fast and easy to set up with NETGEAR Print Server with NETGEAR software configuration program. With Microsoft Internet Explorer or Netscape web browser, you can configure the print server even easier. Please see **Chapter 3** for detail.

Purpose

This guide describes how to set up the Model PS100 series Print Sever. If your network is operating in a Microsoft environment and you are using Microsoft Windows 95, Windows 98, Windows Me, Windows NT, Windows 2000, or Windows XP, refer to the *Model PS100 series Print Sever Installation Guide*. However, this guide provides you with further reference information.
In this guide, the Model PS100 series Print Sever are referred to collectively as the Model PS100 series Print Sever or just the print server. Each model is referred to specifically when features or functions are unique to that particular model.

Audience

To configure and install the print server, you should have the following background and experience:
Working knowledge of basic network management concepts and terminology
Working knowledge of tools and procedures to install and operate electronic equipment

Conventions

This section describes the conventions used in this guide.

Special Message Formats

This guide uses the following formats to highlight special messages:

	• This format is used to highlight information of importance or special interest.
	• This format is used to highlight information that will help you prevent equipment failure or loss of data.
	• This format is used to highlight material involving possibility of injury or equipment damage.
	• This format is used to alert you that you may incur an electrical shock by mishandling equipment.

Use of Enter, Type, and Press

This guide uses "enter," "type," and "press" to describe the following actions:
When you read "enter," type the text and press the Enter key.
When you read "type," type the text, but do not press the Enter key.
When you read "press," press only the alphanumeric or named key.

Other Conventions

This guide uses the following additional conventions:
italics Book titles and UNIX file, command, and directory names.
Initial Caps Menu titles and window and button names.

Related Publication

If you are using Microsoft Windows 95, Windows 98, Windows NT, or Windows 2000 and have a network card installed with the NetBEUI protocol, refer to the *Model PS100 series Print Sever Installation Guide* (document part number M1-PS100NA-3). This guide provides instructions for installing the print servers by using the NETGEAR Print Server Utility, a program developed by NETGEAR for fast and easy device configuration, and for web configuration, a built-in web server in the print server so you can use a browser to configure the print server

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Chapter 1 Introduction

This chapter describes the features and the components of the Model PS111W Print Sever.

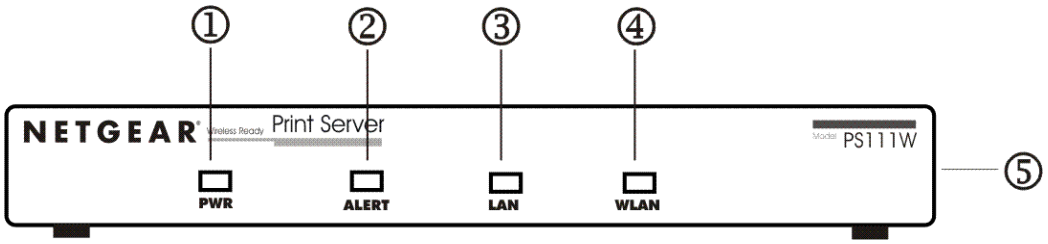
1-1 Features

NETGEAR PS111W print server offers:

- 802.11b standard wireless ready mobile flexibility, and also supports:
  - Wired Equivalent Privacy (WEP) 40/64 or 128 bit encryption
  - Open System and Shared key authentication
  - Infrastructure, ad- hoc, and 802.11 ad- hoc communication modes
  - Up to 11 channels or 13 channels*
    * Depends on the country areas
- Print support - both wired and wireless simultaneously, when wireless set to ad hoc mode
- Support for multiple protocols (TCP/IP, NetBEUI, and Netbios)
- Support for multiple operating systems (Windows 95, Windows 98, Windows Me, Windows NT, Windows 2000, Windows XP, Novell NetWare, and UNIX)
- Easy configuration of the device with NETGEAR Print Server software that assures fast and easy setup for Windows 95, Windows 98, Windows Me, Window NT, Windows 2000, and Windows XP users.
- Web browser interface provides an easy way to configure the print server in a TCP/IP network
- 10/100BASE-T Ethernet connection on the Model PS111W Print Sever.
- One bidirectional parallel port on the Model PS111W Print Sever.
- Compact size to fit into limited space in a work area.
- Wall- mounting holes for attaching the print server to a vertical surface
- Upgradeable BIOS Flash EPROM

1-2 Front Panel

The LEDs that indicate the status of the server, wired, and wireless LAN are located on the front panels of the Model PS111W Print Sever, as illustrated bellow:



1-1 Front Panel of the Model PS111W Print Sever

Key:
1 = PWR (power) LED
2 = ALERT LED
3 = LAN LED
4 = WLAN (wireless LAN) LED
5 = Side panel wireless PC card slot

LEDs

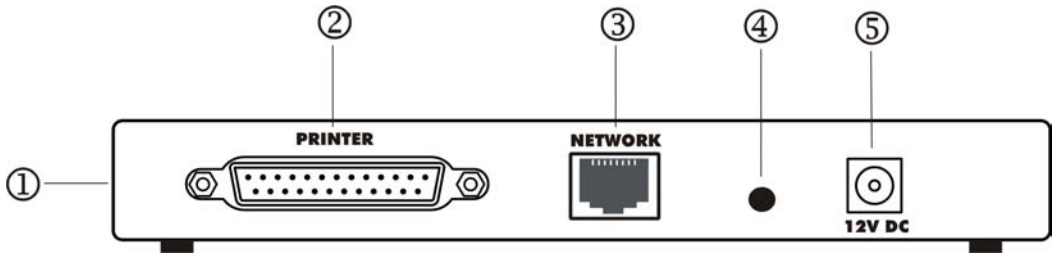
There are 4 LEDs on the front panel of the Model PS111W Print Sever. See the table bellow:

LED Descriptions

Label	Color	Activity	Description
PWR (power)	Green	On	Power is supplied to the print server.
Alert	Amber	Off	Operation is normal
		On	Hardware error
		Blinking	Upgrading BIOS flash ROM
LAN	Green	Off	No LAN connection
		On	Operation is normal without data transmitting or receiving from LAN
		Blinking	Operation is normal with data transmitting or receiving from LAN
WLAN	Green	Off	No wireless PC card
		On	Operation is normal without data transmitting or receiving from wireless LAN
		Blinking	Operation is normal with data transmitting or receiving from wireless LAN

1-3 Rear Panel

The rear panel of the Model PS111W Print Sever has a parallel port for printer. The Model PS111W Print Sever has one 10/100BASE-T network port. The 10/100BASE-T port is an auto negotiation port that operates in 100 Mbps and in half-duplex mode when connected to a Fast Ethernet network. The **diagnostic print and reset to factory default** button can print the current print server setup including IP address and wireless information by pressing and holding it two seconds. If press and hold the button for ten seconds while powering from off to on, the print server will load the factory default setting back into its flash memory.
The Rear Panel as illustrated below, it has a power adapter receptacle that accepts a 12 V 800mA DC power adapter.



1-2 Rear Panel of the Model PS111W Print Sever

Key:
1 = Side panel wireless PC card slot
2 = PRINTER (parallel) port
3 = NETWORK port (10/100BASE-T connector)
4 = Diagnostic print and reset to factory default button
5 = Power adapter receptacle

Chapter 2 Installation

This chapter describes the installation and setup of the NETGEAR Model PS111W Printer Server.

2-1 Preparing the Site

Before you begin installing the print server, prepare the installation site. Make sure the operating environment meets the physical requirements of the print server, as described below.

2-2 Verifying Package Contents

Your package should contain the following:

- Model PS111W Printer Server
- 12V 800mA DC Power adapter
- PS111W Print Server Resource CD
- PS111W Print Server Installation Guide
- Warranty & Owner Registration Card
- Customer Support Phone Card

Call your reseller or NETGEAR Customer Support in your area if there are any wrong, missing, or damaged parts. Refer to "Customer Support" section for the location of customer support in your area. Keep the carton, including the original packing materials. Use them to repack the print server if you need to return it for repair.

2-3 Connecting Devices to the Print Server

The PS111W Print Server Model has one 10/100BASE-T network port that is auto sensing and will support either 10 Mbps or 100 Mbps connections, depending on the connected device. The Model PS101 Print Server has one Ethernet port, which can be operated on a 10/100BASE-T hub/switch in the half-duplex mode.

The network port on the all Print Server Model is configured for Uplink wiring, which means you can connect the Print Server direct to an Ethernet switch or hub.

	NOTE: Ethernet specifications limit the twisted pair cable (called a twisted pair segment) extended from a network port to 100 meters in length.

The Model PS111W Print Server has one wireless PC card slot. It can be operated under three types of environment: LAN, wireless LAN, and both LAN and wireless LAN. Connect network port to an Ethernet hub/switch makes all LAN connected workstations can print with PS111W Print Server. With a NETGEAR MA401 802.11b Wireless PC Card in PS111W, all 802.11b wireless connected workstation can print with PS111W Print Server. If connect network port and with a NETGEAR MA401 802.11b Wireless PC Card in PS111W, both LAN connected workstation and 802.11b wireless connected workstation can print with the PS111W Print Server. Please note while the power is on; do not insert the NETGEAR MA401 802.11b Wireless PC Card in to PS111W Print Server. Doing so is simply not working and maybe damaging the Print Server and the PC card. Do not remove the NETGEAR MA401 802.11b Wireless PC Card out from PS111W Print Server, when the power is on. This may damage the Print Server and the PC card.

	WARNING: To avoid damaging to the wireless PC card and PS111W Print Server, do NOT insert and remove the PC card from or to PS111W Print Server while the power of the Print Server is on.

2-4 Verifying Power

To complete the installation, connect the power adapter first to the power adapter receptacle on the print server rear panel and then to the power outlet on the wall. When power has been applied to the print server:

- The green PWR (power) LED on the front panel is on, if there is one.
- On the PS101 Print Sever Model, the green Link LED on connected network port is on.
- On the PS110 and PS113 Print Sever Model, the green Link/Act LED on the connected PRINTER, PRINTER 1, PRINTER 2, or PRINTER 3 port is on.
- On the PS111W Print Sever Model, the green LAN LED on connected network port is on, and the green WLAN LED with the NETGEAR MA401 801.11b Wireless PC Card in PC card slot is on.

Make sure the network interface cards installed in the workstations are in working condition and the software driver has been installed on the cards.
If required, verify the integrity of the print server by resetting it. Turn power to the print server off and then back on. If this does not help, you can try to load the factory default setting. The procedure is: turn power to the print server off, press and hold the diagnostic and reset to factory default button while turning the power back to the print server. Use the following one of the three options to re-configure the print server: web management in chapter 3, NETGEAR Print Server Setup Wizard, or Administrative tool for advanced user in chapter 7.
If the problem continues and you have completed all the preceding diagnoses, contact NETGEAR Customer Support. For the telephone number of the representative in your area, refer to "Customer Support" section.

Chapter 3 Web Management for Print Server

The web browser interface provides an easy way to configure the print server in a TCP/IP network. You can configure your NETGEAR PS111W Wireless Ready Print Server using any web browser such as Microsoft Internet Explorer or Netscape Navigator.

This chapter contains information about configuring your NETGEAR PS111W Print Server using the print server's browser interface. Please refer to the next following chapters for setting up your printing system.

3-1 Configuring Print Server for TCP/IP

Using a web browser to configure a NETGEAR Print Server requires both the print server and the host workstation that the web browser runs on to be configured for TCP/IP.

NETGEAR PS111W Print Server is set with the factory setting for DHCP environment, which means if you have a DHCP server (most recent broad band routers have provided this feature), PS111W will get its own IP address settings for TCP/IP.

To know the print server’s IP address, press and hold RESET button for two seconds. The printer will print out the print server status report, where it includes the IP address information.

3-2 Connecting to the Print Server

In order to configure the print server over the browser interface, your PC workstation must have a web browser program installed such as Microsoft Internet Explorer or Netscape Navigator. Free browser programs are available for Windows, Macintosh, or Unix/Linux.

1. **Start your Web Browser**

2. **In the Address box, enter HTTP:// followed by the IP Address of the print server. e.g. http://192.168.0.21**
   Alternatively, the IP address of the print server can be found under "Device Information" in the "Control" menu of the NETGEAR Print Server Administration Program.

3. **You will then be prompted for the password. If no password has been set, just press ENTER.**

4. **Use the menu selections listed on the left of the screen to move about.**

Note: Remember to save modifications made on any screen by clicking the Save button before changing to a different screen.

3-3 Browser Menu selections and Configuration Screens

This section describes the browser menu selections and corresponding configuration screens.

Server Status

The Server Status screen shows print server system data and the current settings for all of the other screens. It is read-only; no data can be input on this screen. Click the refresh button to refresh information on this screen. Use the scroll bar to scroll through the display information. Figure 3-1 shows the Server Status Screen.

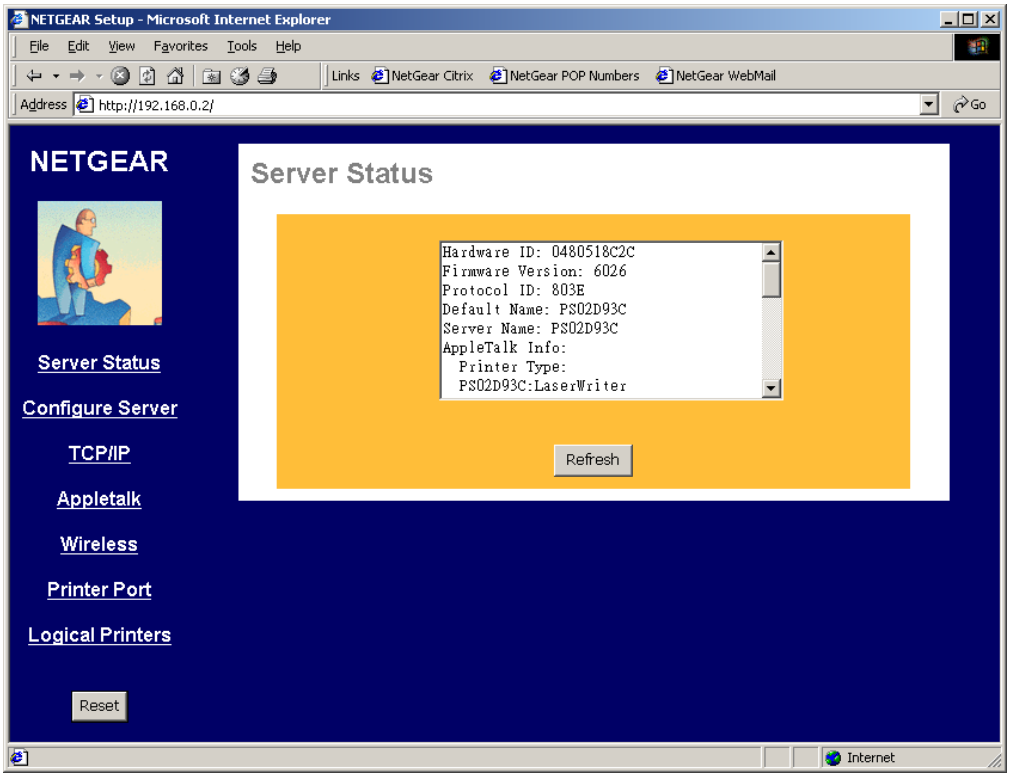


Figure 3-1 Server Status Screen

Configure Server

Clicking the Configure Server menu selection brings up the Configure Server screen. The Configure Server screen contains fields to change the print server name and to enable or disable the various network protocols supported by the print server. Figure 3-2 and following table show the Configure Server Screen and describe each of its fields.
Note: Use key **Tab** on keyboard to move the cursor from field to field besides using the mouse.

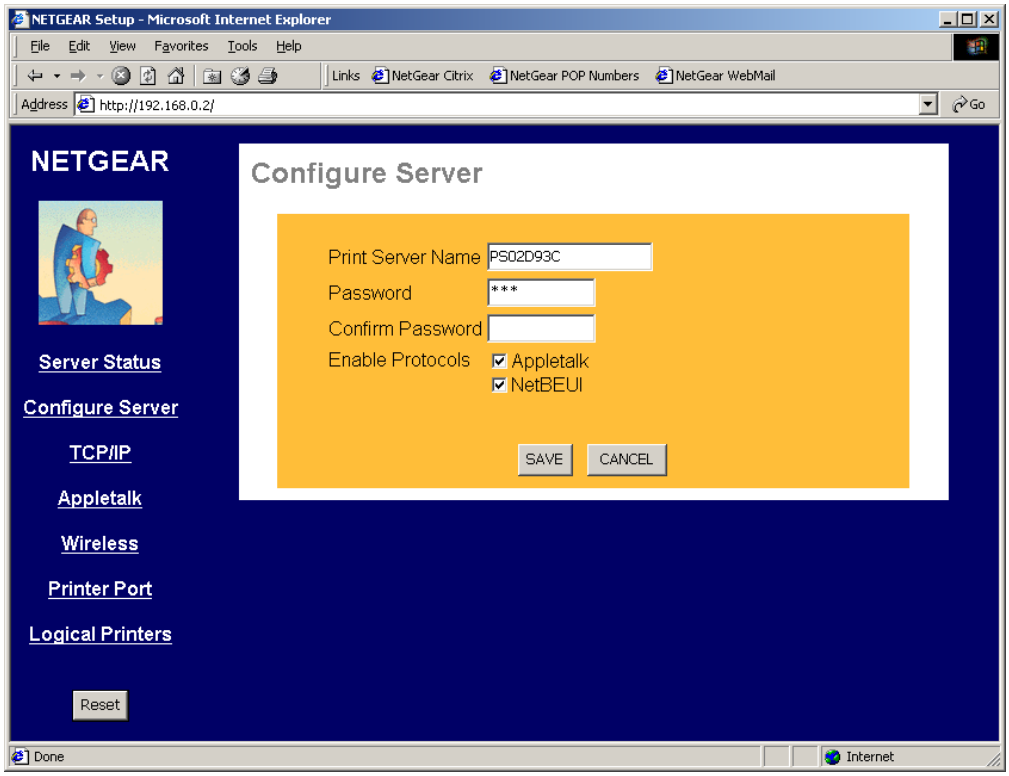


Figure 3-2 System Configuration Screen

Configure Server Fields

Print Server Name	Choose a descriptive name for the print server for identification purposes. This name is used in all protocols to identify the specific print server. There is a factory default name. For any change, NETGEAR recommends that a name be determined before setting the print server in any network. This name should be no more than 16 characters with at least a non numerical letter. Spaces are not allowed, but dashes (-) and underscore marks (_) are accepted.
Password **Confirm Password**	Enter the device password, and again in the Confirm Password field. Once a password is entered, it is required in order to gain access and change the configuration. If you forget the password to the print server, the only way to reset it is by resetting the device to factory default through the NETGEAR Print Server Administration Program.
Enable Protocols	Check the corresponding protocols to enable them on the print server. AppleTalk is used to support AppleTalk printing from Apple computers. NetBEUI is primarily used in a small-scale Microsoft networking environment. A protocol may be disabled if it is not required for your network.

TCP/IP

The TCP/IP configuration screen is used to configure the IP address of the print server. Figure 3-3 shows the TCP/IP configuration screen and following table lists its fields, describes the functions, and explains how to provide information in each field.

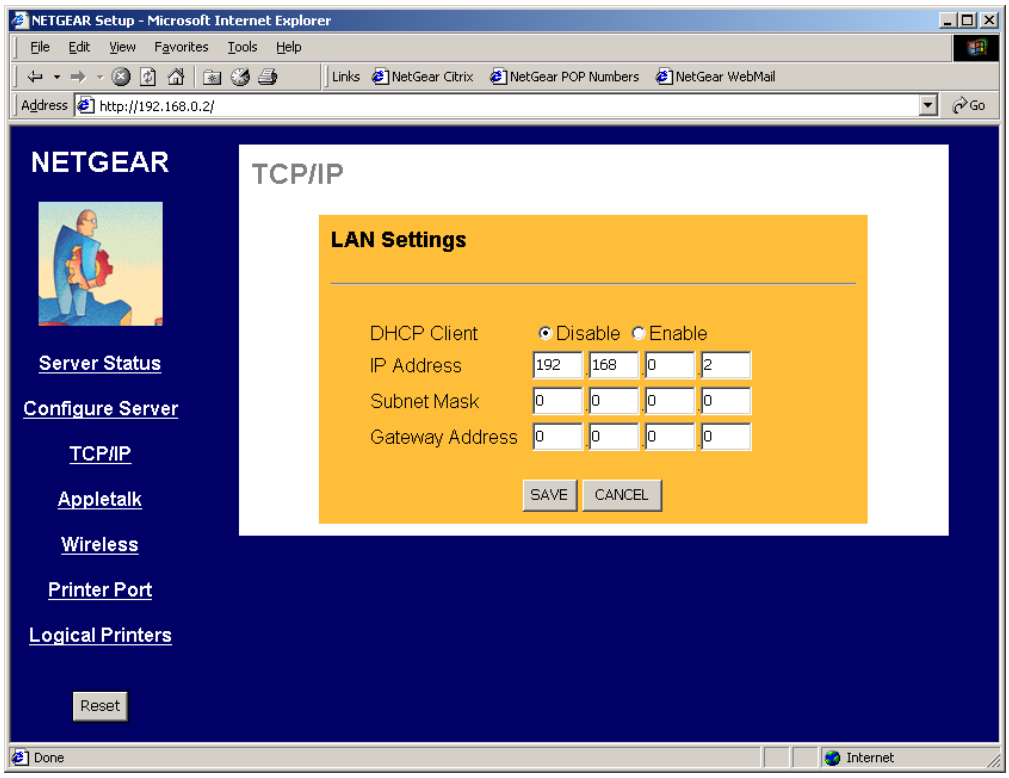


Figure 3-3 TCP/IP Configuration Screen

TCP/IP Configuration Fields

DHCP Client	This field allows you to enable or disable the print server's ability to get its IP address from a DHCP (Dynamic Host Configuration Protocol) server. When disabled, you can provide a fixed IP address in the following fields. If DHCP client is enabled, the fields that follow are not used.
IP Address	This IP address is assigned to the print server. If you have a private LAN and do not plan to connect to the TCP/IP based internet, NETGEAR recommends that you use the address from the IETF-designated private addresses (for example, 192.168.x.x or 10.x.x.x).
Subnet Mask	This subnet mask defines the range of addresses that are reachable on your local LAN. For example, in a network with a NETGEAR router, the default subnet mask is usually 255.255.255.0.
Gateway Address	This is the IP address of the router on your network. For example, in a network with a NETGEAR router, the gateway address is usually 192.168.0.1.
Save Cancel Buttons	Save: After the configuration, click on ‘Save’ button to save the value permanently to PS111W. Cancel: If changed something that is not good, click on ‘Cancel’ button will load the value back from PS111W. No modification will be made into PS111W.

AppleTalk

The NETGEAR Print Server supports AppleTalk (EtherTalk), PAP, ATP, NBP, ZIP and DDP protocols, enabling Apple computers on the network to view and use the Print Server as a regular AppleTalk printer.
The NETGEAR Print Server is enabled for AppleTalk printing by default. Further AppleTalk configuration may be configured through a web browser if the print server is configured for IP access. If the Print Server is not configured for IP access, configuration of the Printer Server for AppleTalk may be performed through the Print Server Admin program on Windows for Apple machines. Figure 3-4 shows the AppleTalk configuration screen and the following table describes it fields.

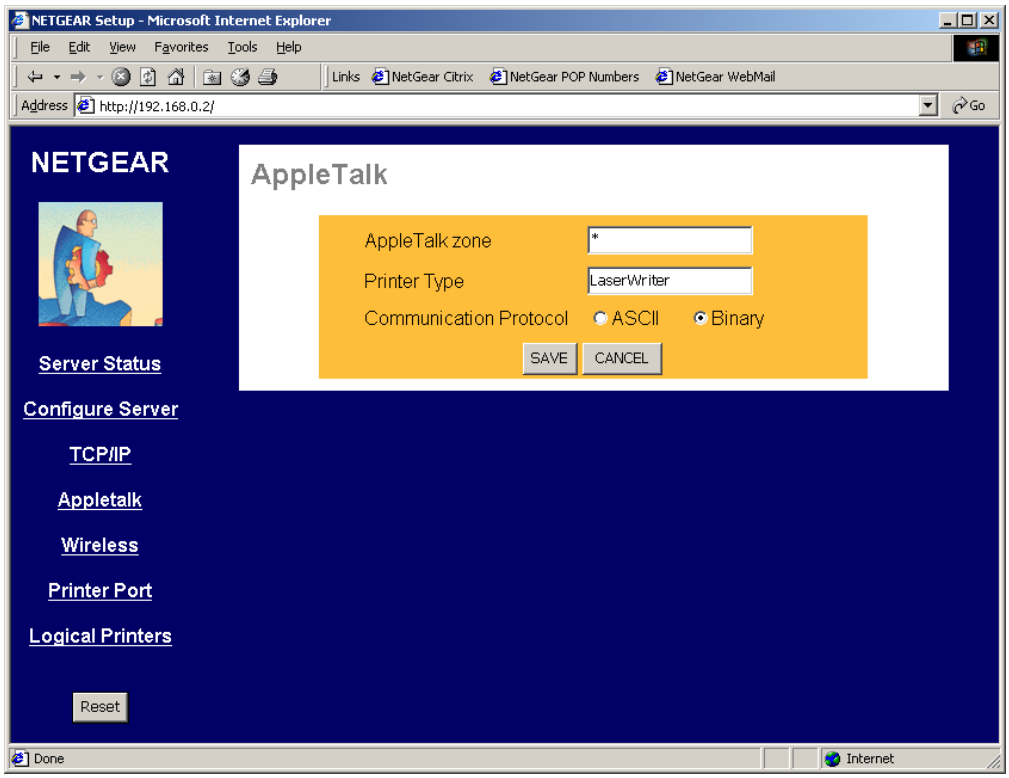


Figure 3-4 AppleTalk Configuration Screen

Apple Talk Configuration Fields

AppleTalk Zone	The AppleTalk zone that the print server will appear in. To put the print server in the default AppleTalk zone of the AppleTalk network the print server is connected to, enter a single asterisk.
Printer Type	These are text fields, used to describe the printer driver used for each port. Currently the only printer driver supported for AppleTalk is LaserWriter.
Communication Protocol	Sets whether the port uses ASCII or Binary Communication Protocol. Binary communication is faster than ASCII. The default is Binary.
Save Cancel Buttons	Save: After the configuration, click on 'Save' button to save the value permanently to PS111W. Cancel: If changed something that is not good, click on 'Cancel' button will load the value back from PS111W. No modification will be made into PS111W.

Wireless

The Wireless screen provides selections for many wireless related operations. See Figure 3-5.

For wireless operation, there are two major configurations.

1. Wireless related setups.
2. Wired Equivalent Privacy (WEP) encryption.

See the following Wireless Configuration Screen section for the detail.

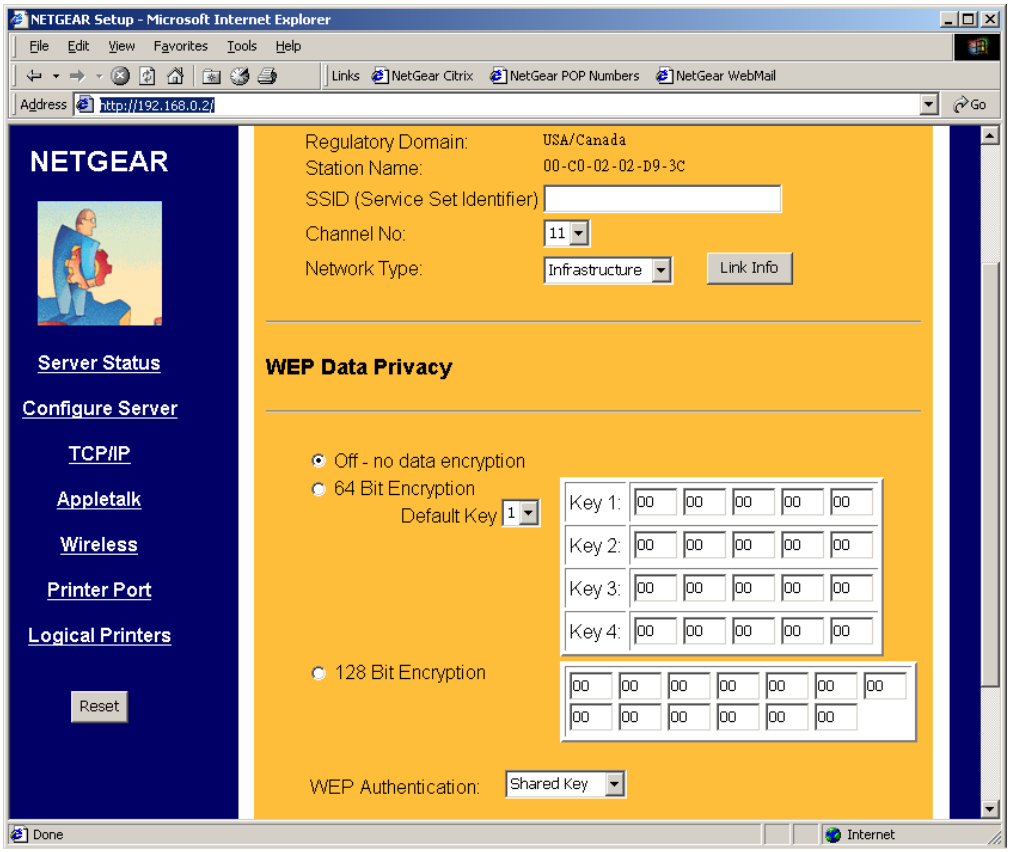


Figure 3-5 Wireless Screen

Configuration fields and buttons

Regulatory Domain	Not configurable. This information is got automatically when there is a NETGAER MA 401 802.11b wireless PC card in PS111W. In northern America, usually get 'USA/Canada'.
Station Name	Not configurable. It is the Ethernet MAC address for the PS111S.
SSID	Stand for Service Set Identifier. It can be empty if the authentication method on Access Point is Open System (see authentication). To specifically tie to a wireless LAN, you need to get this information from your network administrator. It MUST be the same in both Access Point and wireless PS111W. If use ad hoc wireless network, you need to make sure all equipment use the same SSID to communicate to each other.
Channel No	The channel is ranged from 1 to 11 for north America, and for other regulatory area it may vary. To communicate in "802.11 Ad-hoc" or "Ad hoc" mode, all Wireless stations MUST use the same Channel

	number. • If using "802.11 Ad-hoc" or "Ad-hoc" mode, select the value you wish to use on your Wireless LAN. • If using "Infrastructure" mode, the Channel is selected automatically, to match the Channel used by the Access Point. • If you experience interference (shown by lost connections and/or slow data transfers) you may need to experiment with different channels to see which is the best.
Network Type	Select the correct value for your Wireless LAN. • **802.11 Ad-hoc** mode is used when there is no Wireless Access Point, and each Wireless station communicates directly with other Wireless stations. This is the current standard. • **Ad-hoc** mode is used when there is no Wireless Access Point, and each Wireless station communicates directly with other Wireless stations. This is the older standard. • **Infrastructure** mode is used when each Wireless station connects to the Wireless Access point. This also provides access to the wired LAN.

WEP Data Privacy Fields

Off – No data encryption	Default setting; data is NOT encrypted before transmitted. Choose the data privacy encryption from one of the three Off – No data encryption, 64 Bit Encryption, or 128 Bit Encryption.
64 Bit Encryption	• If selected, data is encrypted, using the default key, before being transmitted. The receiving station must be set to 64 Bit Encryption, and have the same Key value in the same position in its key table. Otherwise, it will not be able to decrypt the data. • Default Key - select the key you wish to be the default. Transmitted data is ALWAYS encrypted using the Default Key; the other Keys are for decryption only. **Key 1, Key 2, Key 3, and Key 4** This table is used when Encrypting and Decrypting data. All stations, including this Access Point, always transmit data encrypted using their default key. The key number (1, 2, 3, 4) is also transmitted. The receiving station will use the key number (1, 2, 3, 4) to determine which key value to use for decryption. If the key value does not match the transmitting station, decryption will fail. The easiest way to ensure there are no problems is to have every Station, including the Access Point, use the same key table (all entries identical). It does not matter which default key is used. Enter two hexadecimal numbers in each cell. A hexadecimal number is one of 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, a, b, c, d, e, and f, which represent the number from 0 to 15 respectively.
Default Key	Choose from 1 to 4. For usage please see '64 Bit Encryption' above.
128 Bit Encryption	If selected, data is encrypted using the key before being transmitted. The receiving station must be set to use 128 Bit Encryption, and have the same Key value. Otherwise, it will not be able to decrypt the data. Enter two hexadecimal numbers in each cell. A hexadecimal number is one of 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, a, b, c, d, e, and f, which represent the number from 0 to 15 respectively.
WEP Authentication	Options are "Open System" or "Shared Key". Some Wireless cards and Access Points do not support both methods. Check your documentation to determine the correct value to use.
Save **Cancel** **Buttons**	Save: After the configuration, click on 'Save' button to save the value permanently to PS111W. Cancel: If changed something that is not good, click on 'Cancel' button will load the value back from PS111W. No modification will be made into PS111W.

Wireless Link Info

When click on Link Info button in Figure 3-5, the Wireless Link Info screen shows. See Figure 3-6 for the current wireless link information.

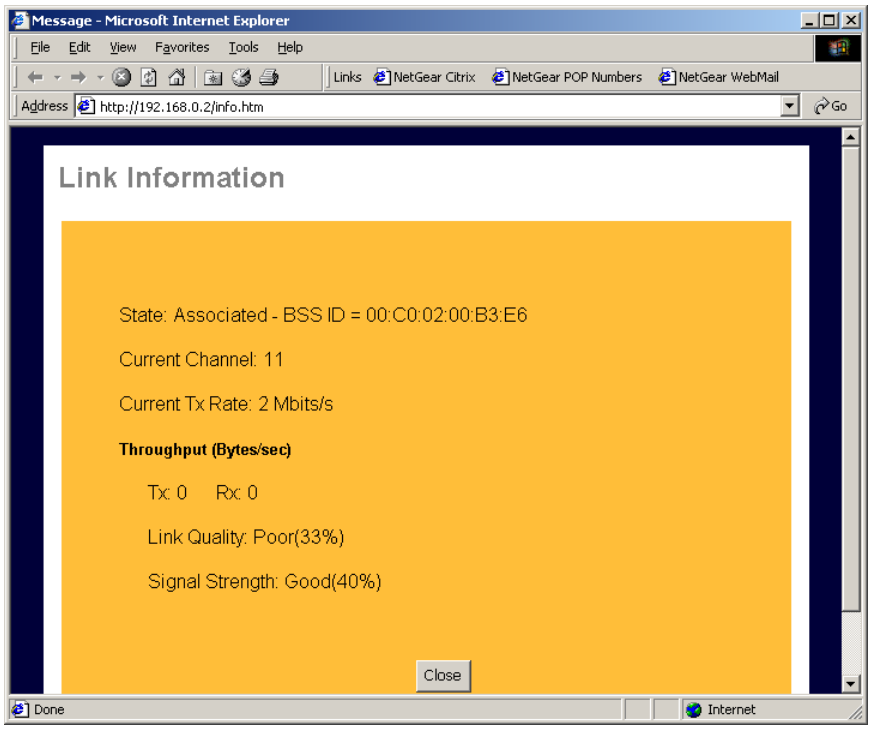


Figure 3-6 Wireless Link Information Screen

Wireless Link Info Fields

Stat: Associated – BSS ID	The other wireless party which PS111W wireless communication is associated with
Current Channel	The current used wireless channel. For Network type as infrastructure mode, the channel is automatically selected the same as with the Access Point.
Current Tx Rate	The current wireless communication speed
Throughput	Tx: The current transmitting rate in the unit of byte per second Rx: The current receiving rate in the unit of byte per second Link Quality: The quality of the link, which is excellent or poor Signal Strength: The signal amplification, which is excellent or poor

Note: The information is only meaningful while there is a NETGEAR MA401 802.11b wireless PC card in the PS111W slot.

Printer Port

The Printer Port screen provides the status of the printer. See Figure 3-7.

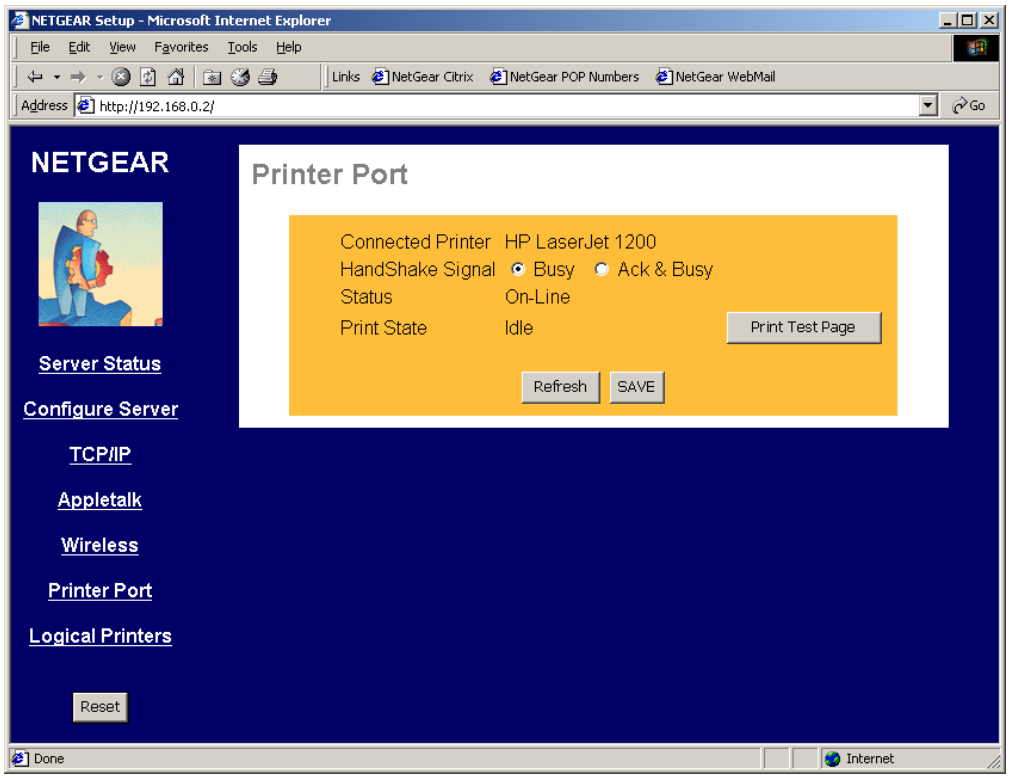


Figure 3-7 Printer Port Screen

Printer Port

Connected Printer	Shows the descriptive name for the new printer.
HandShake Signal	This sets one of the communication parameters between this device and the printer. The default is "Ack & Busy". Only change this to "Busy" if advised to do so by Technical Support.
Status	The current status of the printer (On-line, Off-line, Out of paper)
Print State	This will show either Idle or Printing.
Print Test Page	Click on this button will print the print server status

Logical Printer

The logical printer screen is used to map different logical printer ports to printers attached to the Print Server. A logical printer port is used to specify a set of printer control commands to be sent to a printer for every print job sent through the logical port. Figure 3-8 shows the logical port screen and the following table describes its fields.

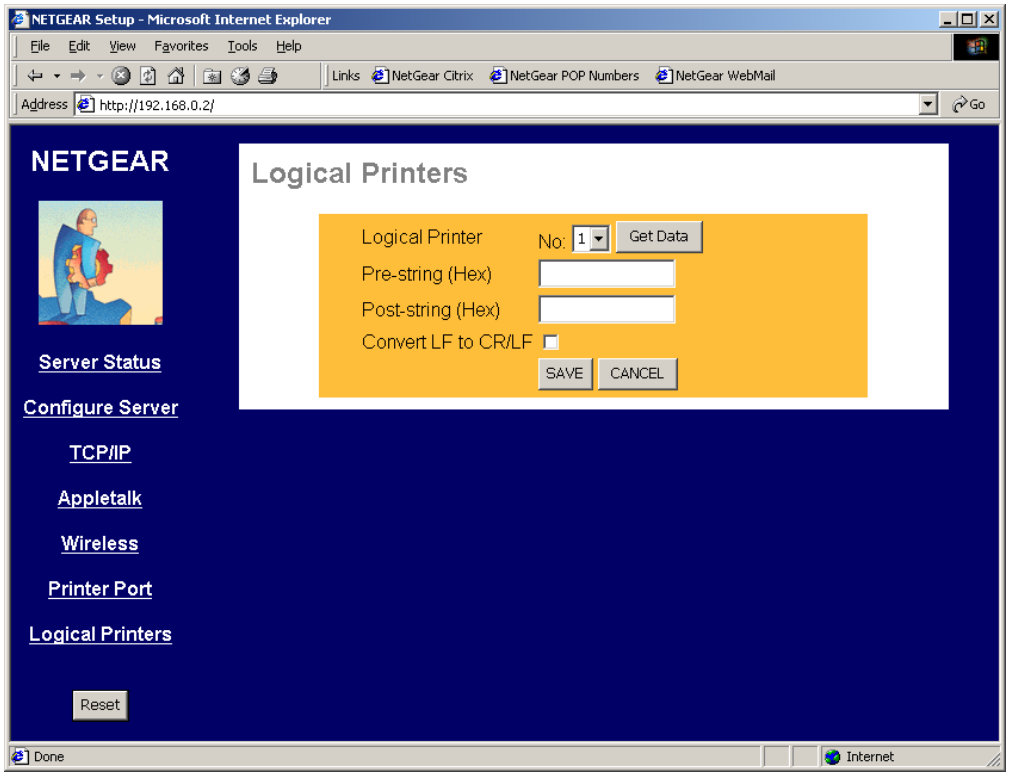


Figure 3-8 Logical Port Screen

Logical Port Fields

Logical Port	Selects the logical port to be configured. Three logical ports are available.
Get Data	Click this button to display the saved configuration parameter for the selected logical port.
Pre-String (Hex)	Provides the control character string to send to the printer before the first character of the job is sent to the printer. One example of such an application would be switching to landscape mode when printing to the logical port. The string is made up of the hexadecimal code of the corresponding ASCII characters, as in these examples: ASCII = [Esc]&|0O Hexadecimal = 1B266C304F ASCII=[Esc]&|1O Hexadecimal = 1B266C314F An ASCII to hexadecimal number conversion table is include in the appendix.
Post-String (Hex)	Provides the control character string to send to the printer after the last character of the job is sent to the printer. The character string must be in hexadecimal format as illustrated in the String Before Job example above.
Convert LF to CR/LF	If checked, adds a carriage return (CR) every time the line feed (LF) character code is received by the print server when print data is sent to this logical printer port. Generally this should be unchecked. It may be needed for compatibility between Unix and Windows.
Save Cancel	Save: After the configuration, click on 'Save' button to save the value permanently to PS111W.

Buttons	Cancel: If changed something that is not good, click on ‘Cancel’ button will load the value back from PS111W. No modification will be made into PS111W.

Reset

Clicking the RESET button will reboot the print server. When you change settings for TCP/IP and Wireless, you will need to reset the print server.

	NOTE: If the print server is rebooted, any print job in progress will be disrupted.

	NOTE: If DHCP client is enabled, which is the default setting, after system reboots, the IP address of the unit may be changed. Please use the diagnostic button prints out to verify the IP address.

Chapter 4 Microsoft Windows System Printing

This chapter describes how to configure and use the NETGEAR PS111W Print Sever in a Microsoft Windows networking environment.

To configure your hardware and software for the Microsoft Windows platform, you may:

- Use a web browser, like Microsoft Internet Explorer or Netscape, to configure your NETGEAR Print Server. For the use of web browser configuration, please refer to Chapter 3.
- Install NETGEAR Print Server software. Run Setup.exe.
- Configure the user PC to print to the NETGEAR Print Server.
- Install the User and Reference guide in the local machine, so that you don't have to carry the NETGEAR PS111W Printer Server Resource CD Rom.

4-1 Printing in Windows

For the printing in your Windows system, you will need to do the following steps.

1. Application hardware connection
   including the physical network connection to your PC and print server, or the wireless environment MA401. Also the printer with the cable to the PS111W Print Server. Please refer to Quick Installation Guide and choose a proper application setting for your environment.
2. NETGEAR Print Server Software Installation
   will install the essential software for the configuration of the print server. By using NETGEAR Print Server Setup Wizard you can set up the print server. If you can use Web Configuration, you may not need to install the software. Please refer to Chapter 3.
3. Setup your PC to recognize the print server and write down the port name
   let your PC add a special printer port by using NETGEAR Add Printer Wizard. Before add driver for the printer, NETGEAR Add Printer Wizard will add the port automatically. You will need the port name, so **please write down the port name** when provided to you.
4. Add a printer to your system to print.
   Use NETGEAR Add Printer Driver to install the driver for your printer. Note: If you are using Windows 9x (including 95, 98, and ME), you MUST install this software.

4-2 NETGEAR Print Server Software Installation

NETGEAR Print Server software works for PS100 series Print Sever in a Microsoft Windows networking environment.

To install and set up your network and your print server for the NETGEAR Print Server, you may use a PC with a Microsoft Windows (95, 98, NT 4.0, ME, 2000, or XP) operating system and with either the TCP/IP protocol or the NetBEUI protocol enabled.

Turn on the power to your PC.

	Note: Before proceeding with these instructions, be sure to assign a name to your workgroup on your PC. NETGEAR strongly recommends that you exit all Windows programs before running the Setup program. It is also necessary to install the NETGEAR Print Server software on every PC in the network that will use the printers attached to the PS100 series Print Sever.

Insert the CD ROM into the CDROM drive. The program should start automatically. If not, please double click on setup.exe under the CDROM root directory. The first screen is shown below. Click on Next button.

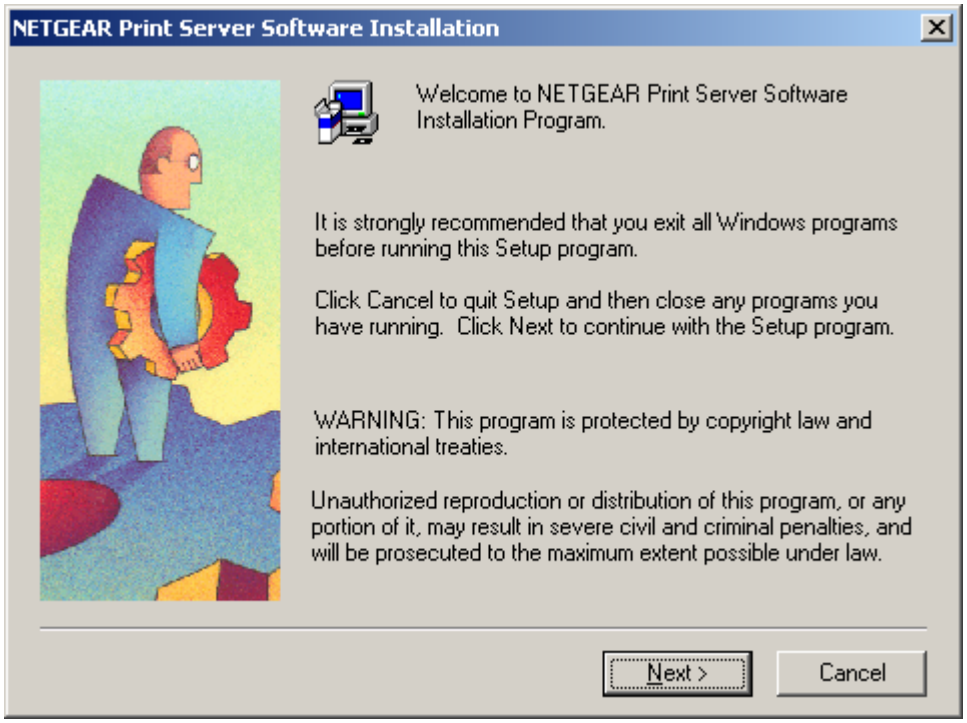

NETGEAR Print Server Software Installation
Welcome to NETGEAR Print Server Software Installation Program.
It is strongly recommended that you exit all Windows programs before running this Setup program.
Click Cancel to quit Setup and then close any programs you have running. Click Next to continue with the Setup program.
WARNING: This program is protected by copyright law and international treaties.
Unauthorized reproduction or distribution of this program, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under law.
Next >
Cancel

Figure 4-1 Print Server Installation

The second screen provides you an important message as shown below. Click on Next button.

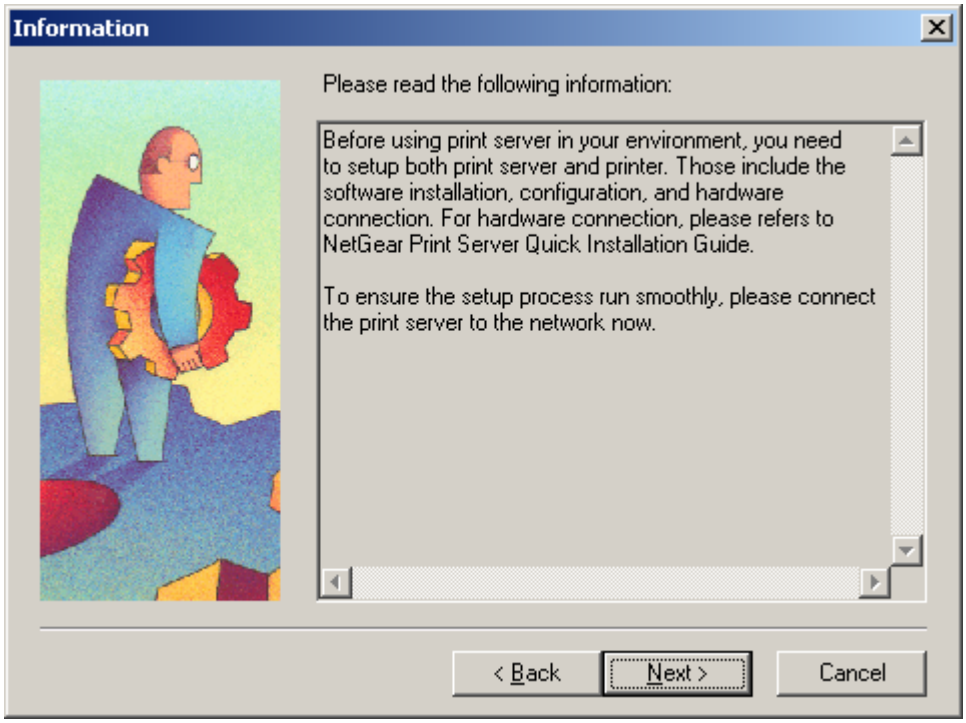

Information
Please read the following information:
Before using print server in your environment, you need to setup both print server and printer. Those include the software installation, configuration, and hardware connection. For hardware connection, please refers to NetGear Print Server Quick Installation Guide.
To ensure the setup process run smoothly, please connect the print server to the network now.
< Back
Next >
Cancel

Figure 4-2 Information

As the next graphics, the third screen shows you a couple options.

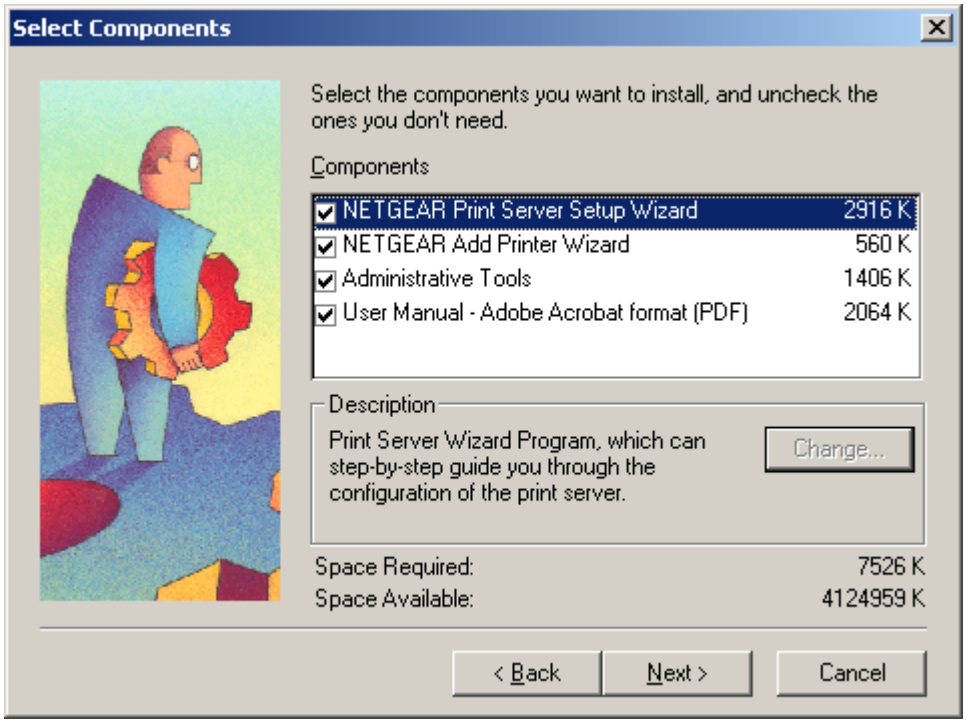

Select Components
Select the components you want to install, and uncheck the ones you don't need.
Components
NETGEAR Print Server Setup Wizard 2916 K
NETGEAR Add Printer Wizard 560 K
Administrative Tools 1406 K
User Manual - Adobe Acrobat format (PDF) 2064 K
Description
Print Server Wizard Program, which can step-by-step guide you through the configuration of the print server.
Change...
Space Required: 7526 K
Space Available: 4124959 K
< Back
Next >
Cancel

Figure 4-3 Components

- NETGEAR Print Server Setup Wizard
  An easy to use for the configuration of the print server wizard program

- NETGEAR Add Printer Wizard
  A step-by-step guide program to configure the printer to print from your Microsoft Windows
  You MUST install the NETGEAR Add Printer Wizard so you can use the print server to print from Windows.

- Administrative Tools
  Advance administrative tools including admin and IPSetup
  Use admin to manage the print servers on LAN. Use IPSetup to manually assign IP address for the print servers. Note that the print server default is a DHCP client. If there is a DHCP server, you do not need to set up IP address. (Normally a home router comes with a DHCP server).

- User Manual – Adobe Acrobat format (PDF)
  A user and reference manual that goes the detail as you see now

After make the proper selections, click on Next button. You can choose the location of the program.

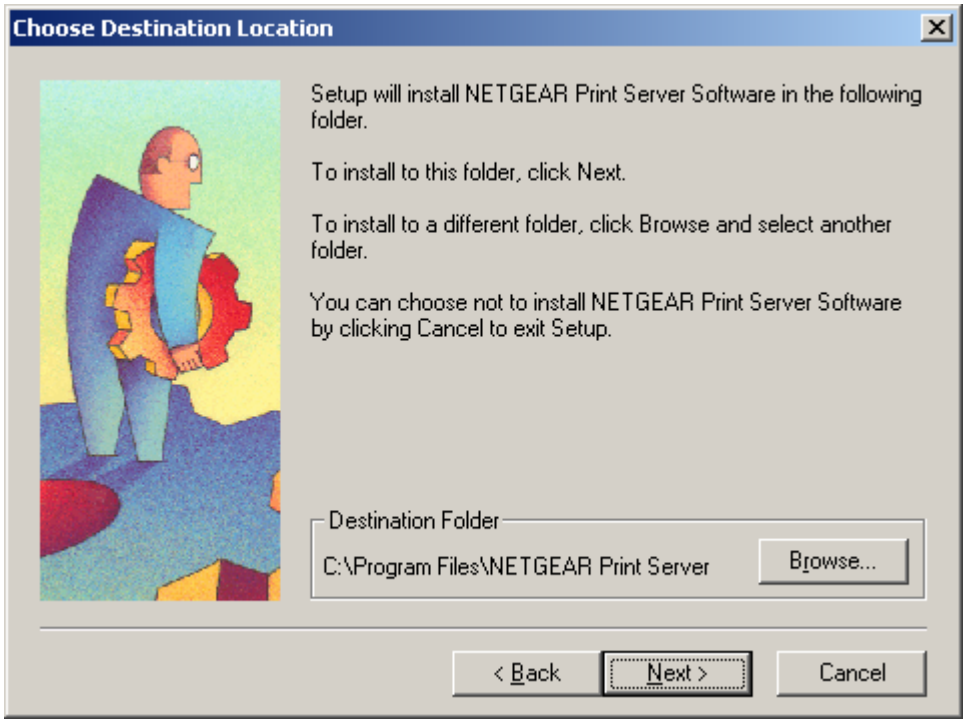

Choose Destination Location
Setup will install NETGEAR Print Server Software in the following folder.
To install to this folder, click Next.
To install to a different folder, click Browse and select another folder.
You can choose not to install NETGEAR Print Server Software by clicking Cancel to exit Setup.
Destination Folder
C:\Program Files\NETGEAR Print Server
Browse...
< Back
Next >
Cancel

Figure 4-4 Destination Location

Choose a program folder name. You click on Next button to accept the default name.

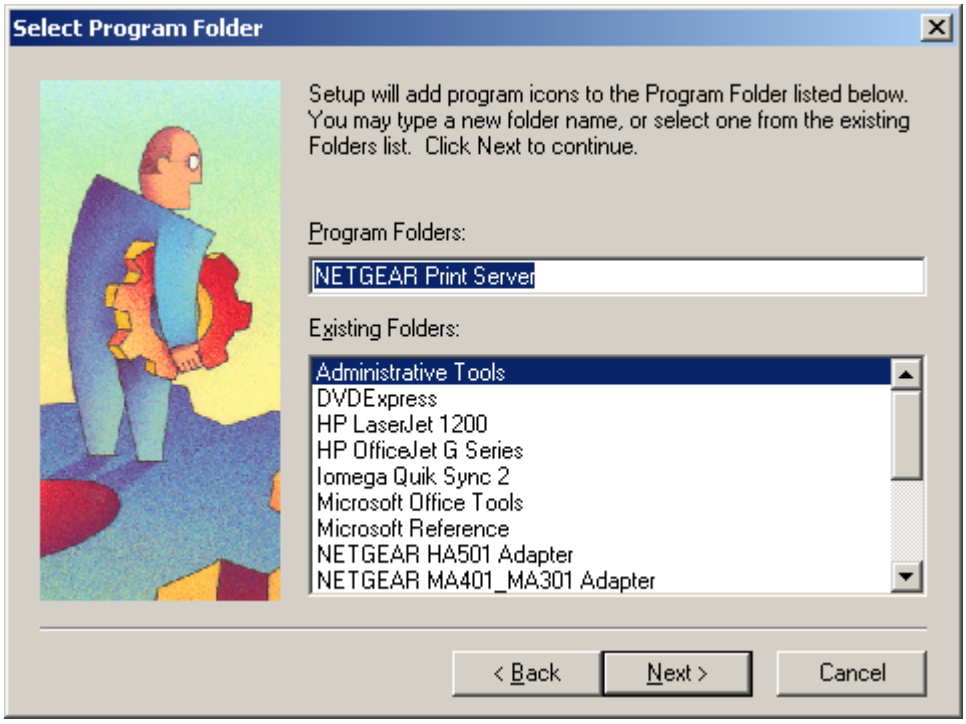

Select Program Folder
Setup will add program icons to the Program Folder listed below. You may type a new folder name, or select one from the existing Folders list. Click Next to continue.
Program Folders:
NETGEAR Print Server
Existing Folders:
Administrative Tools
DVDExpress
HP LaserJet 1200
HP OfficeJet G Series
Iomega Quik Sync 2
Microsoft Office Tools
Microsoft Reference
NETGEAR HA501 Adapter
NETGEAR MA401_MA301 Adapter
< Back
Next >
Cancel

Figure 4-5 Program Folder

The next screen shows you the progress of the installation.

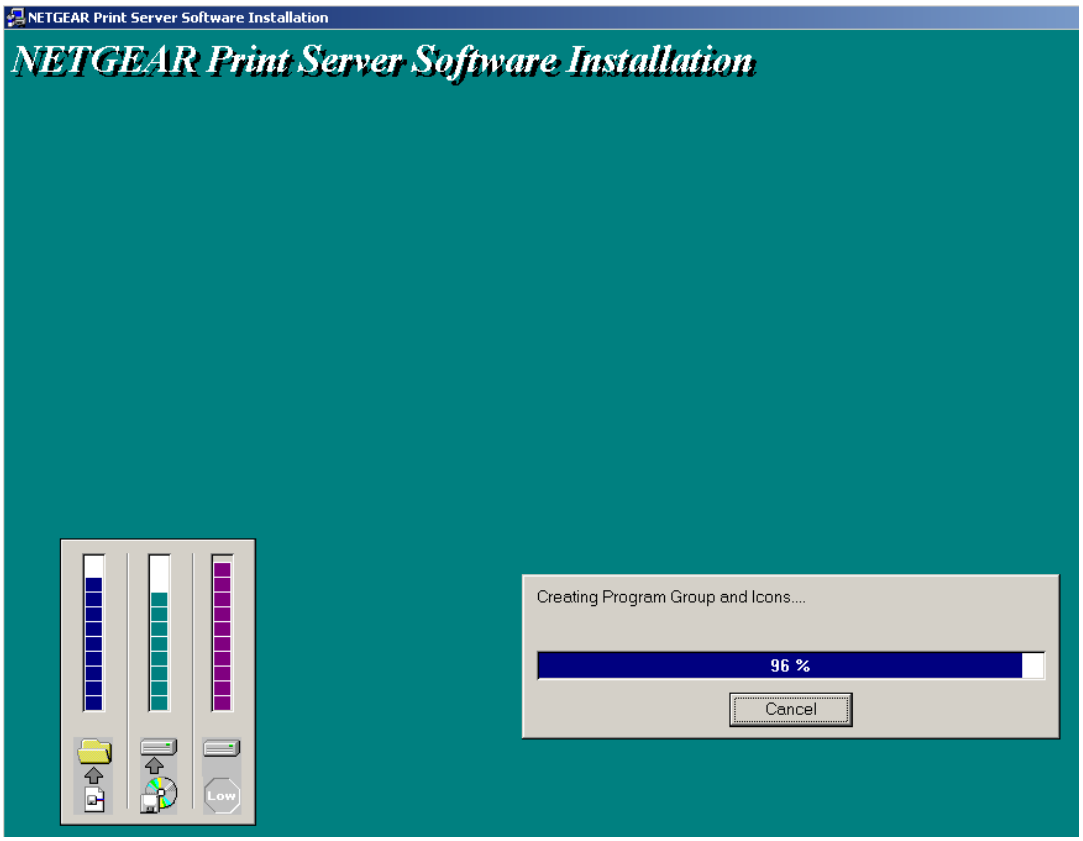


Figure 4-6

Before you finish the installation, you can choose to run the NETGEAR Print Server Setup Wizard and read the manual. You can uncheck either one or both of the selections and run it at a later time.

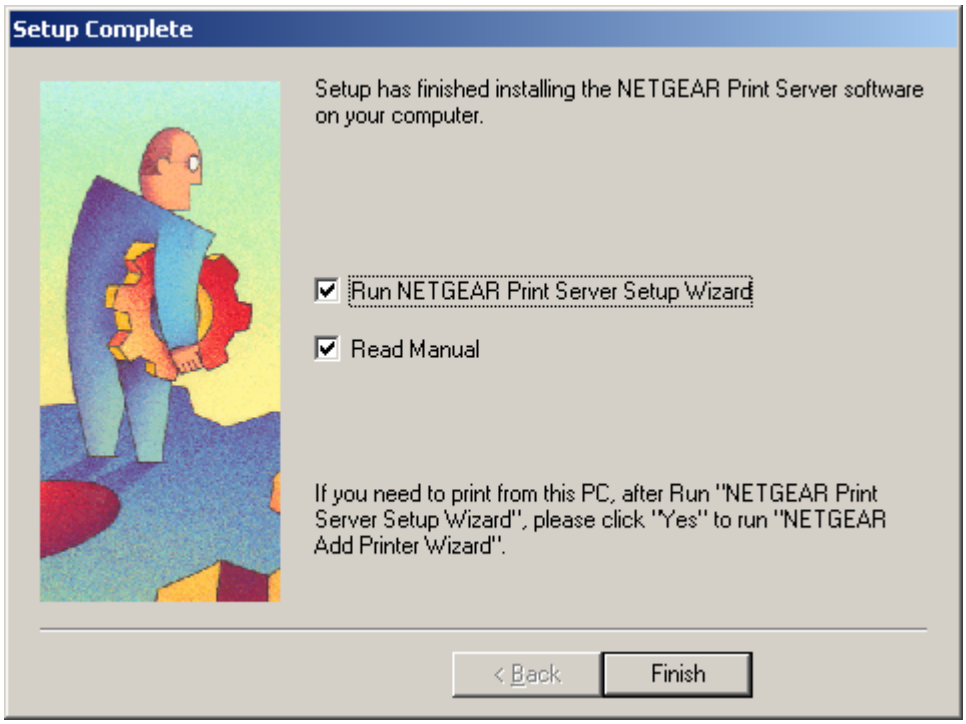

Setup Complete
Setup has finished installing the NETGEAR Print Server software on your computer.
Run NETGEAR Print Server Setup Wizard
Read Manual
If you need to print from this PC, after Run "NETGEAR Print Server Setup Wizard", please click "Yes" to run "NETGEAR Add Printer Wizard".
< Back
Finish

Figure 4-7 Complete Screen

There will be a program group created and shown as below.

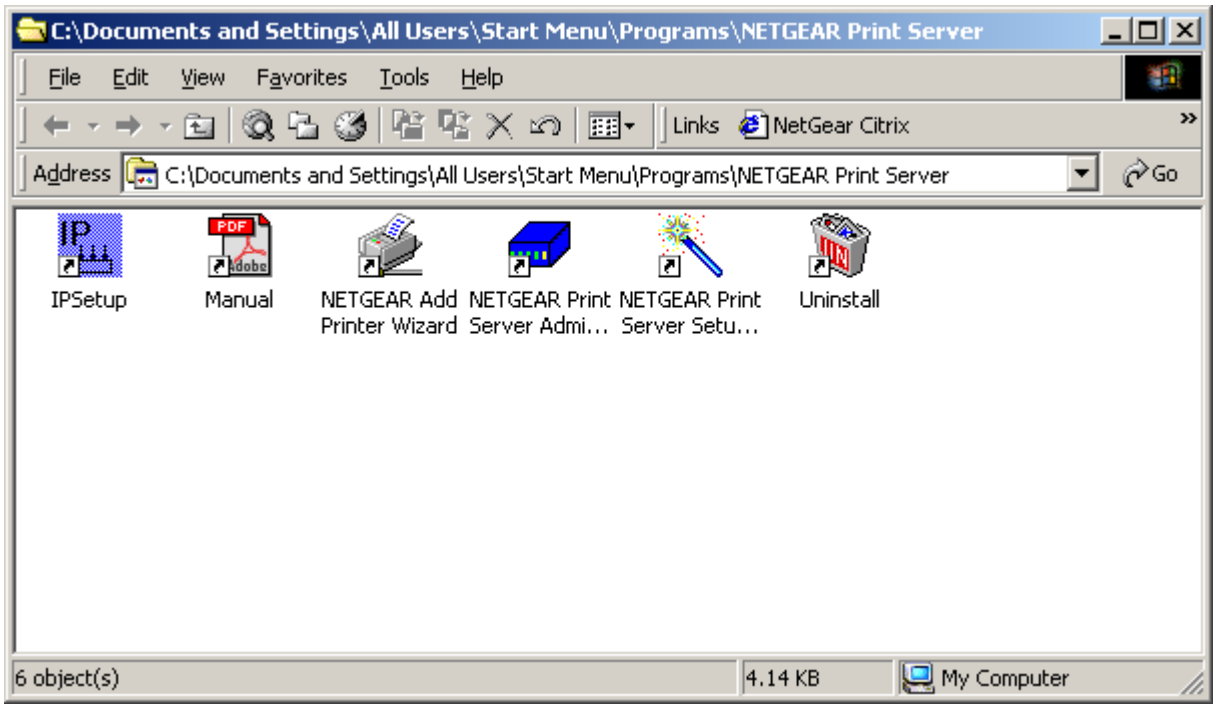


Figure 4-8 NETGEAR Print Server

You can open and access the group from your desktop as well. See Figure 4-9.

4-3 Setting Up Your PC to Recognize the Print Server

You must set up each PC that will print to the print server. Before proceeding, verify that:

- The print cable is connected to the printer port.
- The AC adapter is plugged into the wall socket.
- The Ethernet cable is plugged into the LAN, or the wireless MA 401 PC card is installed in PS111W.

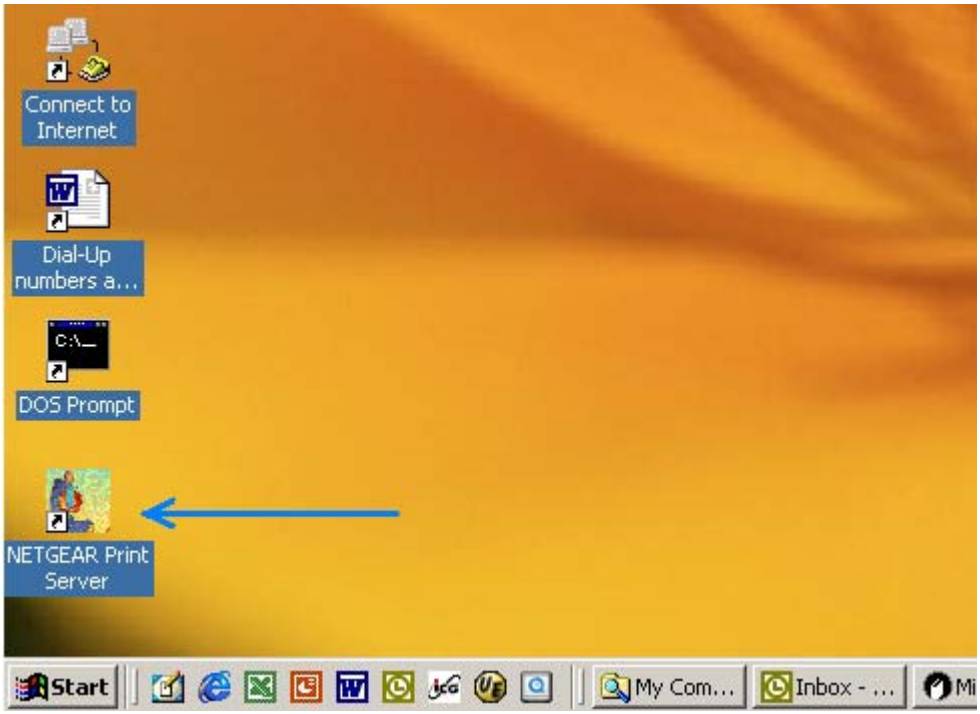


Figure 4-9 NETGEAR Print Server software Icon

To set up each PC:

Double-click on the desktop icon, as showing Figure 4-8, that you named the group in the previous section, Figure 4-5.

Double-click on NETGAER Print Server Setup Wizard in the NETGEAR Print Server window.

The NETGAER Print Server window opens, as illustrated below.

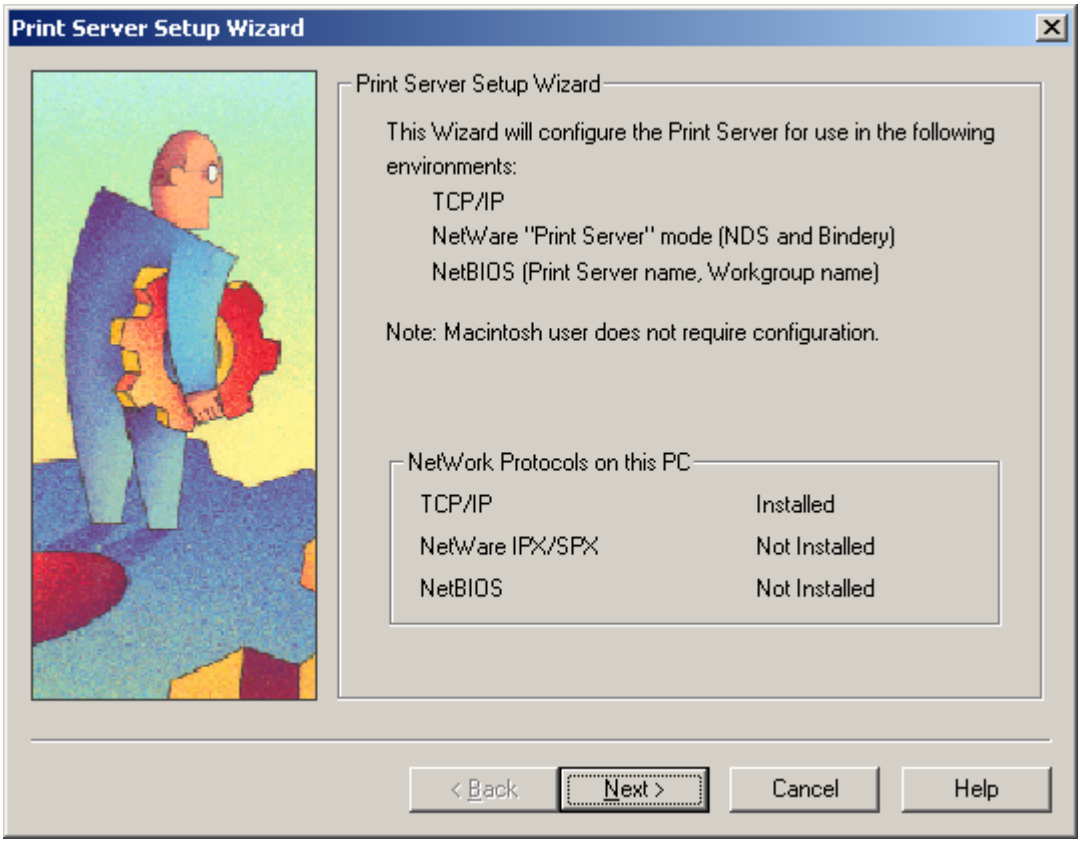


Figure 4-10 NETGEAR Print Server Setup Wizard Window

In this window, you will see whatever network protocols you have installed on the local machine.

You need TCP/IP to use web management. Most nowadays operating systems including Microsoft Windows 98, ME, 2000, and XP use TCP/IP as the primary networking protocol.

PS111W does not support NetWare IPX/SPX environment.

Older system, like Microsoft Windows 3.1, may support only Netbios protocol as the Microsoft Network.

You must have either TCP/IP or Netbios protocol, or both to use NETGAER PS111W print server.

Click on Next.

The Printer Server Setup Wizard window shows the current available NETGEAR Print Server on LAN. Click on Refresh button to see the new added print server. If you still don't see the one you'd like to see, wait a minute and click the Refresh button again.

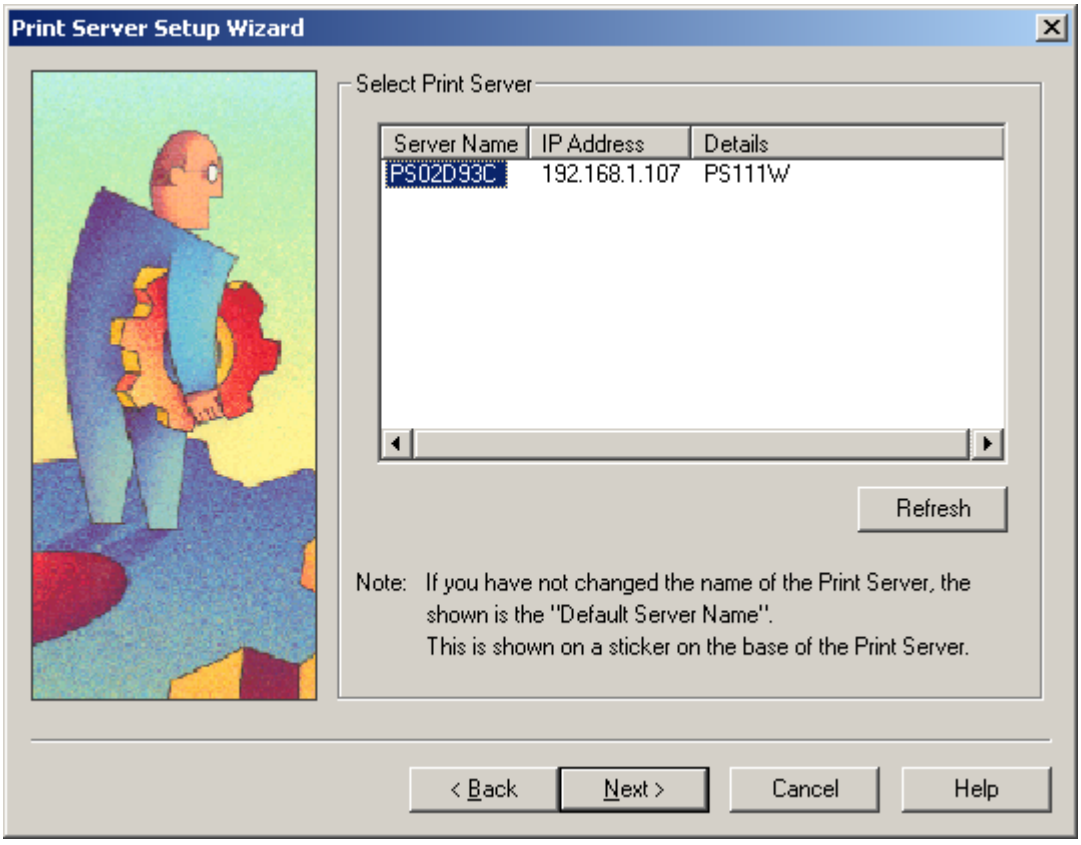


Figure 4-11 Select Print Server

Select the PS111W print server and click on Next.

The Printer Server Setup Wizard window shows the current print server Name. The default name is the Device Name on the base of the unit. Change it to a unique name, or leave it without changing it. See Figure 4-12 Select Name for Print Server.
If your primary network is not Netbios/NetBEUI, you can leave Workgroup Name without a name.

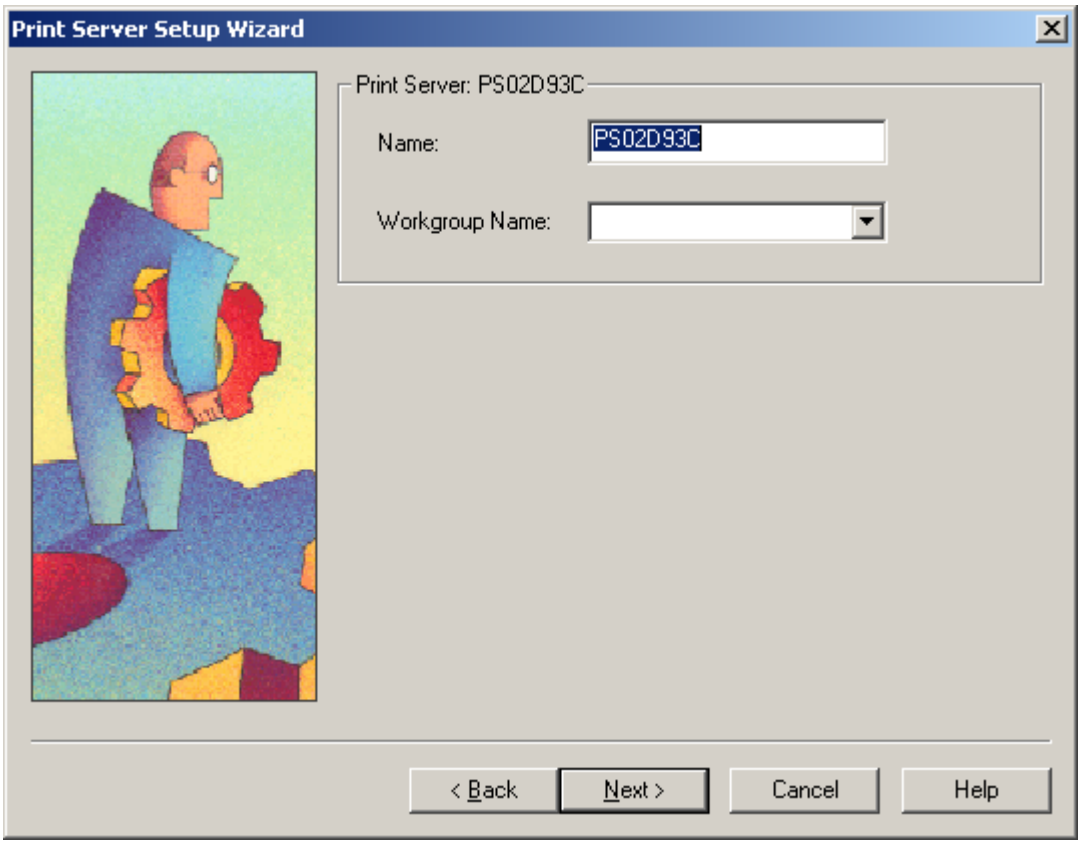


Figure 4-12 Select Name for Print Server

Click on Next.

The next Printer Server Setup Wizard window, Figure 4-13, shows TCP/IP setting for the print server. You can choose to use a dynamic IP address, which is the most common setting, for the print server. Then, select Obtain IP Address automatically. When select this option, there are two ways to get an IP address dynamically. The first one is to get an IP address from a DHCP server. If you have and use a home gateway/router, it usually comes with a DHCP server by default. The print server comes out of the factory as a DHCP client and can get an IP address automatically. The second way is to use a self-assigned IP address automatically. This is the same as a Microsoft Windows PC system. It is call Auto-IP.

Auto-IP

When NETGEAR PS111W Print Server is without an IP address due to as a DHCP client and there is no DHCP server to automatically get an IP address, it will self-assign a unique IP address. The address range is from 169.254.0.1 to 169.254.254.254 with the subnet mask 255.255.0.0 so that the print server can communicate and work with other IP devices using the same mechanism.
To get the current IP address for the print server, make sure the printer power is ON, the print cable is connected to the PS111W print server, and the print server power is ON, press the diagnostic button for two seconds. The printer will print out the status of the print server, as well as the IP address.

How do I use this feature?
Select Obtain IP Address automatically in Figure 4-13 Set up TCP/IP for Print Server to get an IP address. You do not use a DHCP server (usually if you don't share a broadband – DSL, Cable, or satellite connection, you don't have one). You are networking with Ethernet (including Fast- and Gigabit-Ethernet) network. Then you can use this feature. Your Microsoft Windows system uses this feature by itself. You can click on Start – Run, Enter 'command', and click OK. When the command prompt window is popped up, enter

Ipconfig

You may see the IP address for your system with 169.254.m.n, where m = 0-254 and n=1-254. The range is from 169.254.0.1 to 169.254.254.254 with the subnet mask 255.255.0.0 too. When you know the IP addresses for your system and the print server, you can test the connection from your PC to the print server. In the command prompt window, enter

Ping 169.254.x.y

Where 169.254.x.y is the IP address you get from the print out of the print server. (You should replace x and y with the IP address numbers in the print-out of the print server.)

You may set up a fixed IP address for the PS111W print server.
Select Fixed IP Address. Please enter the IP address, Subnet mask, and Default gateway accordingly. You should get these values from your network administrator. If you don't know what values you should use, you may use Suggest New Values button. This button is available only when you select Fixed IP Address. After click the Suggest New Value button, a set of values will be filled in the fields.

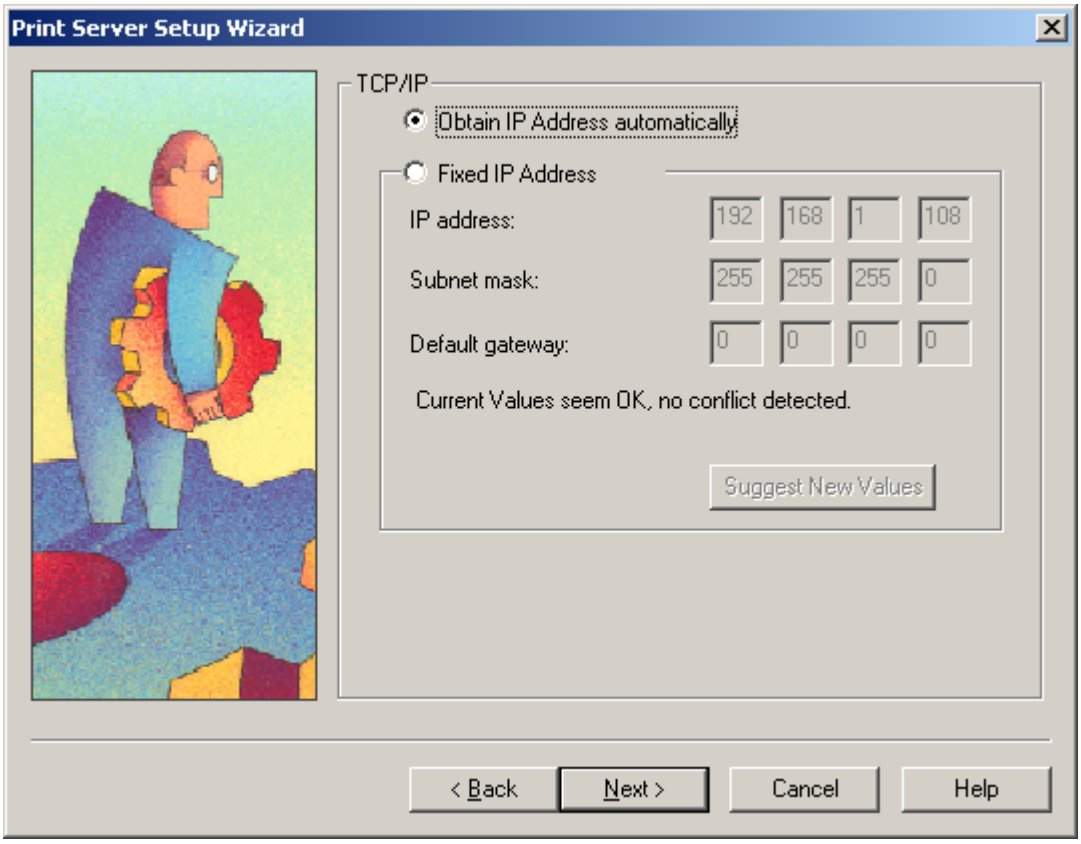


Figure 4-13 Set up TCP/IP for Print Server to get an IP address

Click on Next.

The next Printer Server Setup Wizard window, Figure 4-14, shows wireless settings for the print server. If there is no NETGEAR 802.11b MA401 Wireless PC card in the slot, and not planning for now, you can simply skip this step by going directly to the next step.

Wireless Configuration

Station Name is not changeable. It is the MAC address of the Ethernet of the print server.
SSID is Service Set Identifier, which should be the same for the entire wireless LAN. Get it from the network administrator. If the Encryption is disabled and the Authentication using Open system, this field can be empty.
Depends on the country area, you can choose one from 11 to 13 channels for the wireless communication. Please note, when the wireless network type is in infrastructure mode, the channel is selected automatically same as with the Access Point.
For the Network Type, if you have an Access Point, you MUST use Infrastructure mode to communicate wirelessly. Please note, if plan to use the PS111W Wireless Ready Print Server in infrastructure mode with Access Point, you MUST NOT connect it with Ethernet network, or it will disable the wireless communication.

You can secure your wireless communication by using wired equivalent privacy (WEP) encryption. The default encryption is disabled as WEP Disabled selected. By selecting WEP Enabled, you can enable the 64-bit or 128-bit encryption. If you choose 64-bit WEP Keys, you have the choice of Key 1 to Key 4 for the Default key. All the key fields are hexadecimal from 00 to FF. You need to enter five hexadecimal values as a set for 64-bit encryption and 13 for 128-bit.
You also need to choose WEP Authentication method from one of Open System and Shared Key. The WEP Authentication is associated with the SSID. For the Open System, the wireless device without SSID is accepted to the Access Point, if no encryption. Some wireless devices can even browse the SSID from Access Point. If use Shared Key for WEP Authentication, the wireless device must use the same SSID to get access to the Access Point.

If you plan to use encryption, please make sure all the wireless communicating devices sharing the same authentication, default key, and encryption keys.

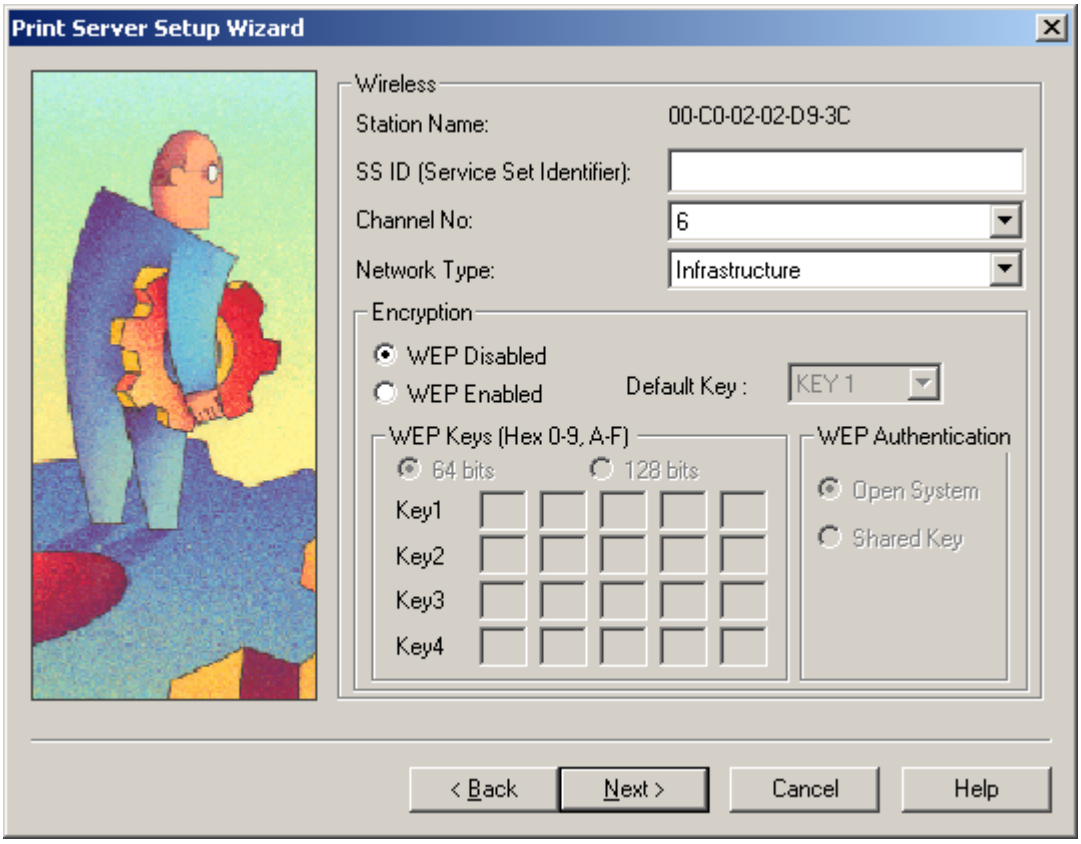


Figure 4-14 Wireless Configuration

Click on Next.

Figure 4-15 Configuration Completed shows the completion of the print server configuration.

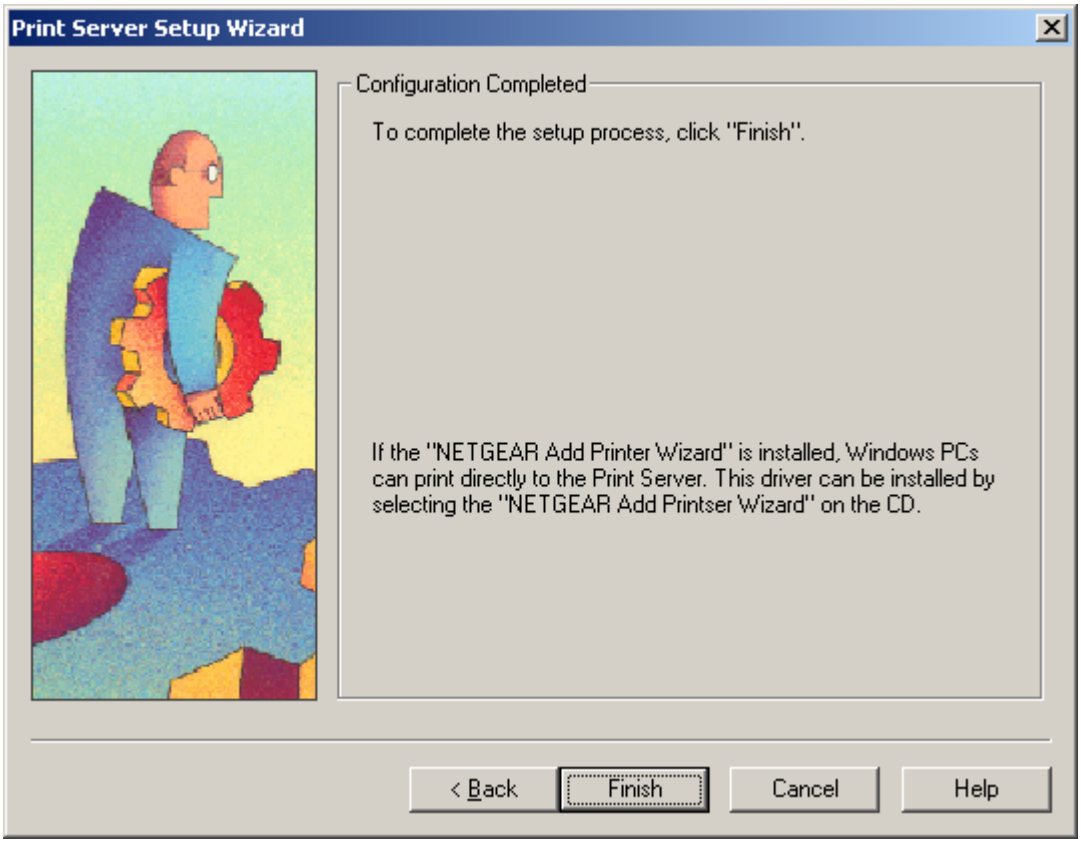

Print Server Setup Wizard
Configuration Completed
To complete the setup process, click "Finish".
If the "NETGEAR Add Printer Wizard" is installed, Windows PCs can print directly to the Print Server. This driver can be installed by selecting the "NETGEAR Add Printser Wizard" on the CD.
< Back
Finish
Cancel
Help

Figure 4-15 Configuration completed

Click on Finish.

The PS111W Print Server is ready to be used.
If you have installed NETGAER Add Printer Wizard, you'll be able to install the printer driver and configure it. Click No, if you don't need to add a printer to your system now. You can add a printer at a later time by opening the NETGEAR Print Server group and running NETGEAR Add Printer Wizard.

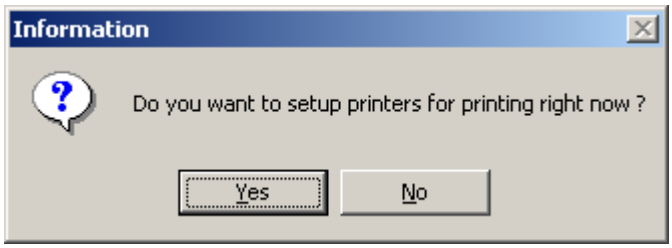


Figure 4-16 Add a Printer

NETGEAR Add Printer Wizard - Write Down the Port Name

You can reach this setup procedure by answering Yes to the previous Figure 4-16 Information. Or open NETGEAR Print Server group and run NEYGEAR Add Printer Wizard.

Make sure that the NETGEAR Print Server and the printer that connects to it are both powered on.

Make sure that the cable connections between them are properly connected.

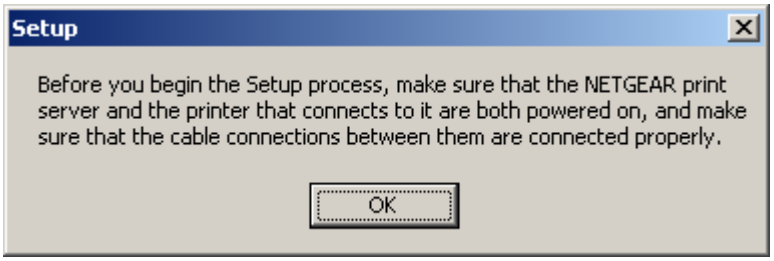

Setup
Before you begin the Setup process, make sure that the NETGEAR print server and the printer that connects to it are both powered on, and make sure that the cable connections between them are connected properly.
OK

Figure 4-17 Set up printer

Click on OK.

The Printer Select window, as illustrated in See Figure 4-18 Printer Select Window (Add Port), opens.

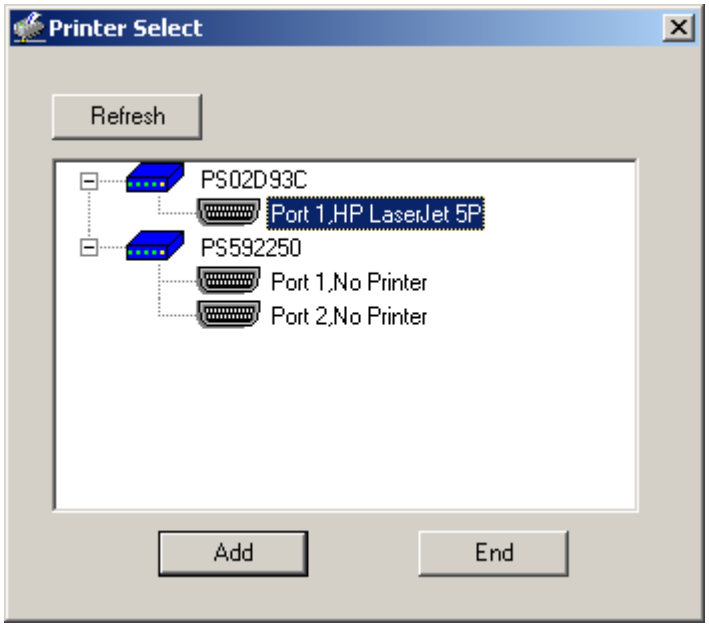


Figure 4-18 Printer Select Window (Add Port)

→	If the cables are not properly connected, your PC screen will appear empty when the Printer Select window opens. If so, check the cable connections and click on the Refresh button, which will initiate the PC to browse again for a port.

Click on the printer port you want to use with the print server, and click on Add.

The ADDPORT window for Epson print connection, as illustrated in below.

ADDPORT Window (Epson Connection)

Click on No if you do not have an Epson Stylus Color printer attached to the port, and continue to step 8.

Or

Click on Yes if you *do* have an Epson Stylus Color printer (or plan to install one). You must disable the Epson printer.

To disable:

Click on the Program Files folder on your hard drive.

Start the Epson Spool Manager.

The Queue Setup window opens, as illustrated below. See Figure 4-19 Epson Spool Manager Queue Setup Window.

Figure 4-19 Epson Spool Manager Queue Setup Window

Select Queue Setup, and click on Use Print Manager for this port.

Click on OK to exit the Queue Setup window.

The ADD PORT window, as illustrated in Figure 4-20 Add Port message, opens. This window informs you that you have successfully added the port.

ADD PORT Window

If this is not an Epson printer, skip the above procedure. The Add Port should be added successfully. See Figure 4-20 Add Port message.

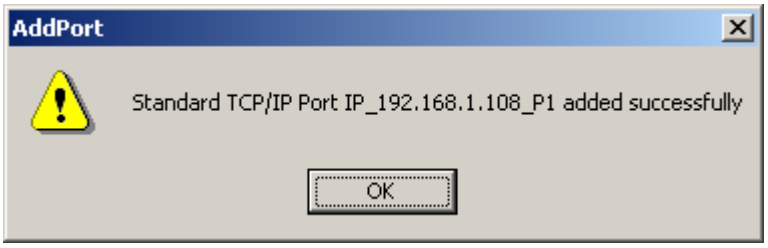


Figure 4-20 Add Port message

Write Down the Port Name

It is very important to remember and write down the port name. You will need this information later when prompted to select a printer port. See Figure 4-20 Add Port message. The port name, here for example, is IP_192.168.1.108_P1. You should write it down in the Quick Installation Guide in the line
Now, write down the printer port name: _____

4-4 Add a printer to your system to print

Select Printer Port for Add Printer Wizard

After selected the printer, you need to select a printer port to print. See Figure 4-21 Select Printer Port for Add Printer Wizard.

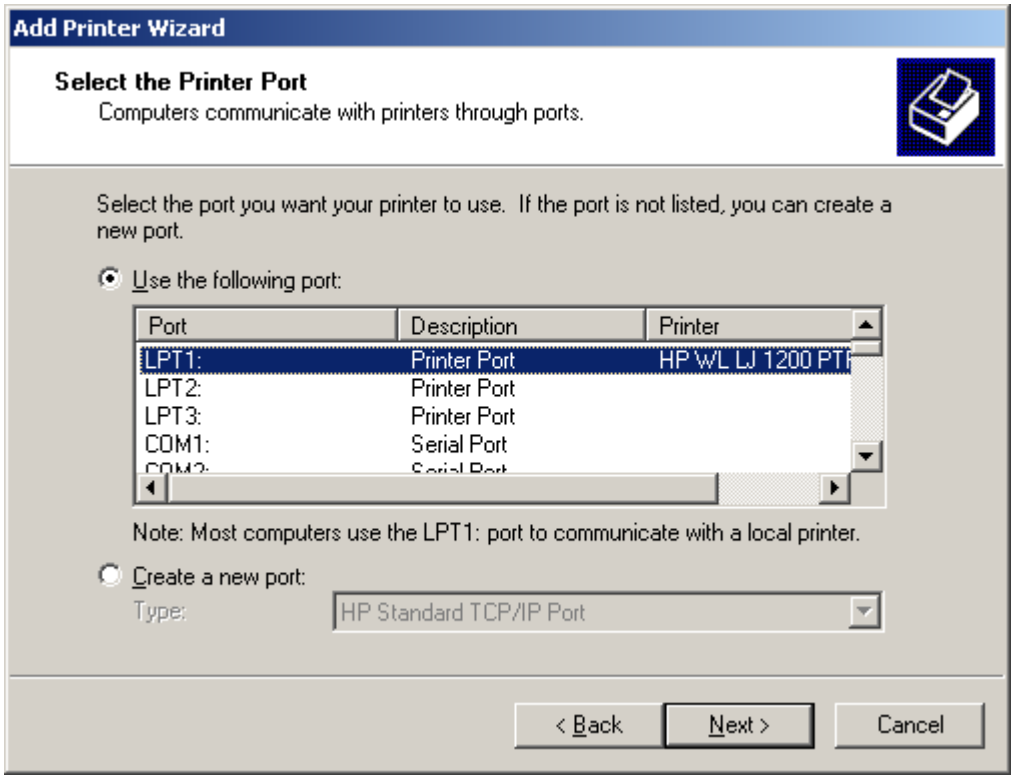


Figure 4-21 Select the Printer Port for Add Printer Wizard

Use the printer port name written at the last section. Scroll down and find the printer port name. For example, the printer port name here is 'IP_192.168.1.108_P1'. See Figure 4-22 Find and select the printer port. For Windows 95, and 98 users, this window will show up after Add Printer (Figure 4-23 thereafter).

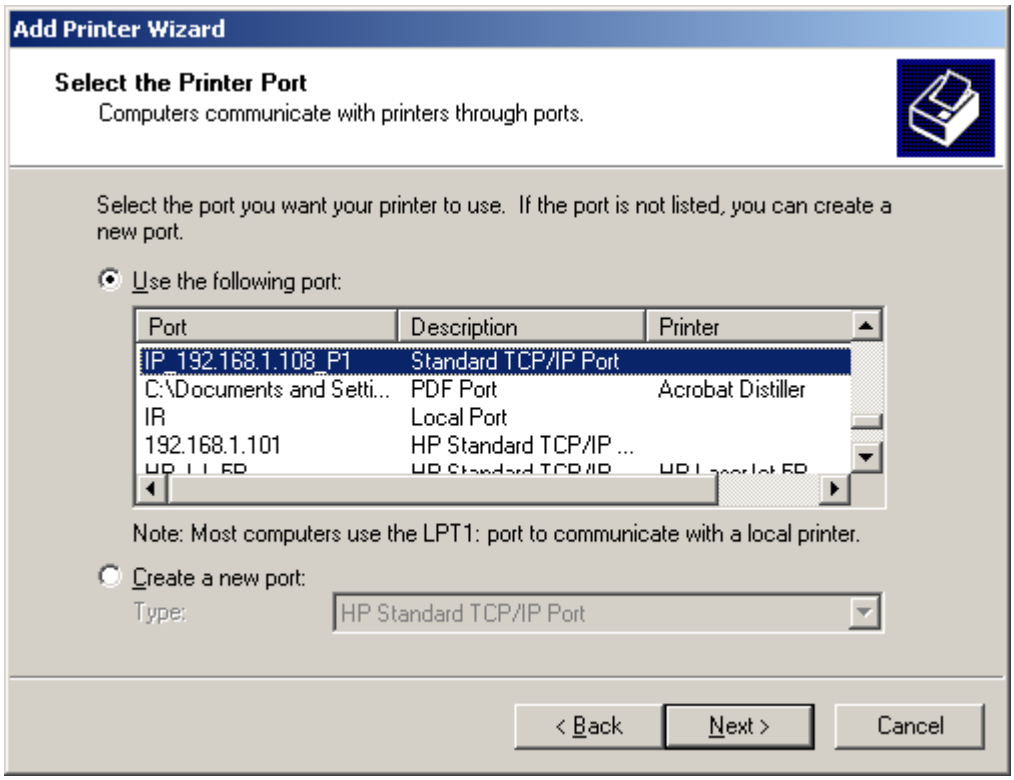


Figure 4-22 Find and select the printer port

Click on Next

Add Printer Wizard, Figure 4-23 Add Printer Wizard window, shows. Choose the manufacturer and the model name of the printer. If there is a CD provided with the printer, insert the CD and click on 'Have Disk…' button. Follow the instruction on screen to install the correct driver.

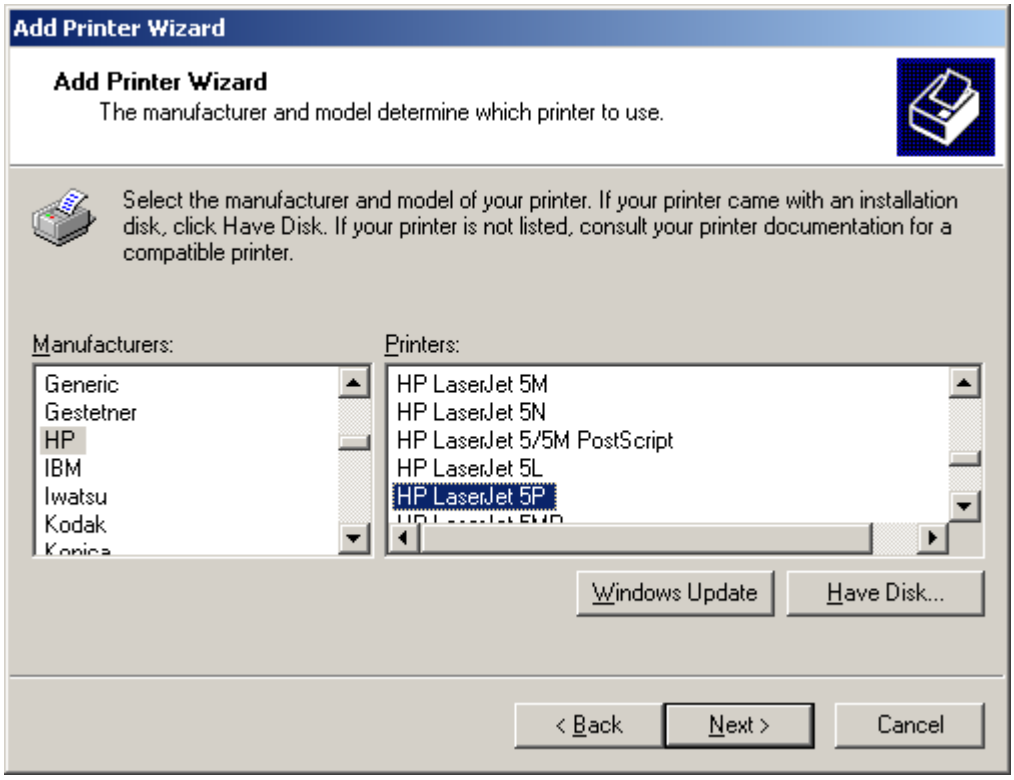


Figure 4-23 Add Printer Wizard

Click on Next

If you have ever installed the printer driver in the system, Figure 4-24 Use Existing Driver window shows. You can choose to keep the existing driver, or replace it. If you don't see Figure 4-24, go to the next step.

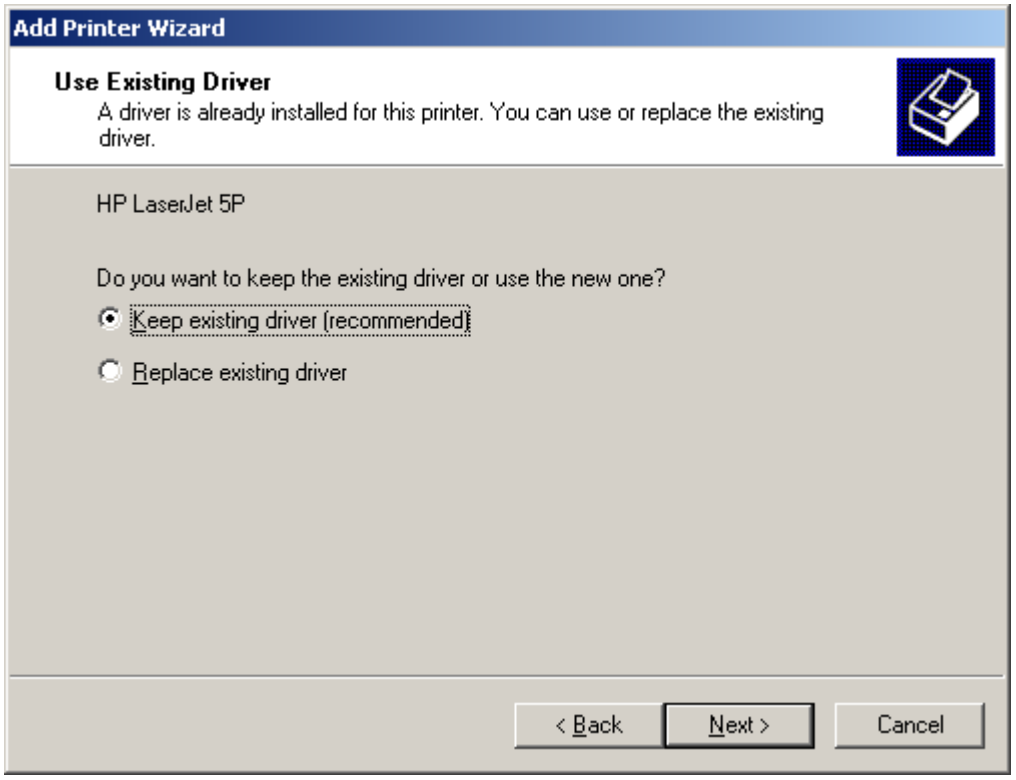

Add Printer Wizard
Use Existing Driver
A driver is already installed for this printer. You can use or replace the existing driver.
HP LaserJet 5P
Do you want to keep the existing driver or use the new one?
Keep existing driver (recommended)
Replace existing driver
< Back
Next >
Cancel

Figure 4-24 Use Existing Driver for Add Printer Wizard

Click on Next

Name the printer. See Figure 4-25 Name Your Printer for Add Printer Wizard. If there are more than one printer drivers installed in the system, you may answer Yes to choose this as your default printer for your Windows-based programs.

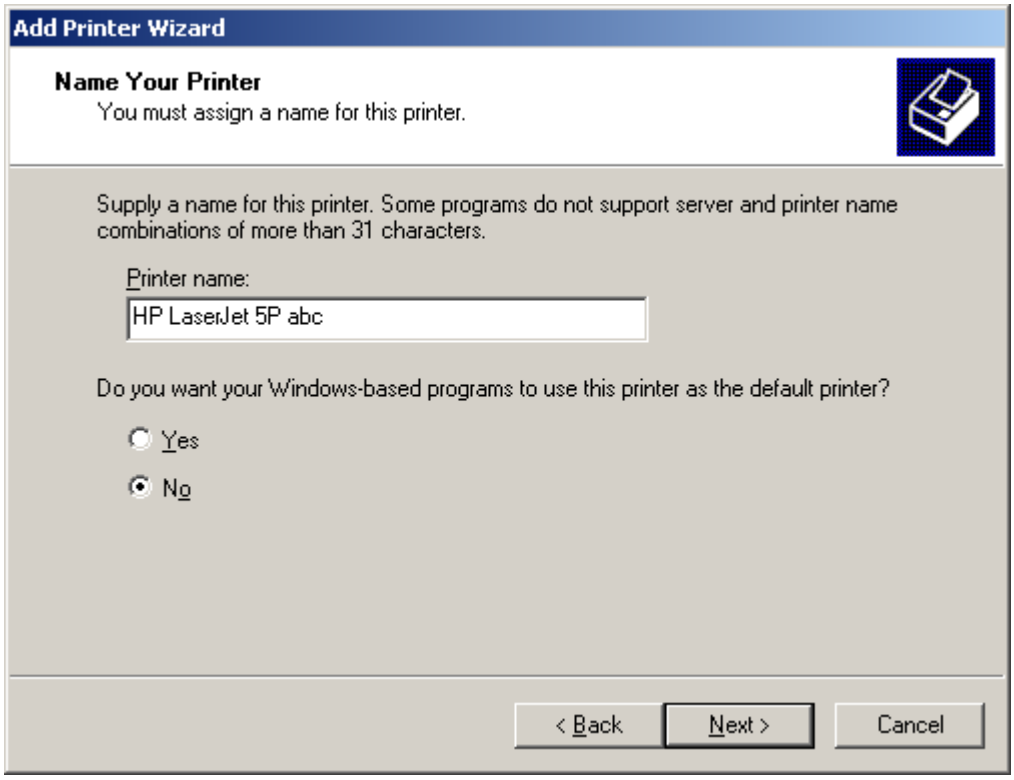

Add Printer Wizard
Name Your Printer
You must assign a name for this printer.
Supply a name for this printer. Some programs do not support server and printer name combinations of more than 31 characters.
Printer name:
HP LaserJet 5P abc
Do you want your Windows-based programs to use this printer as the default printer?
Yes
No
< Back
Next >
Cancel

Figure 4-25 Name Your Printer for Add Printer Wizard

Click on Next

See Figure 4-26 Printer Sharing. When you use print server for the printer, you don't usually need to share the printer on the local machine. Keep the default answer as Do not share this printer.

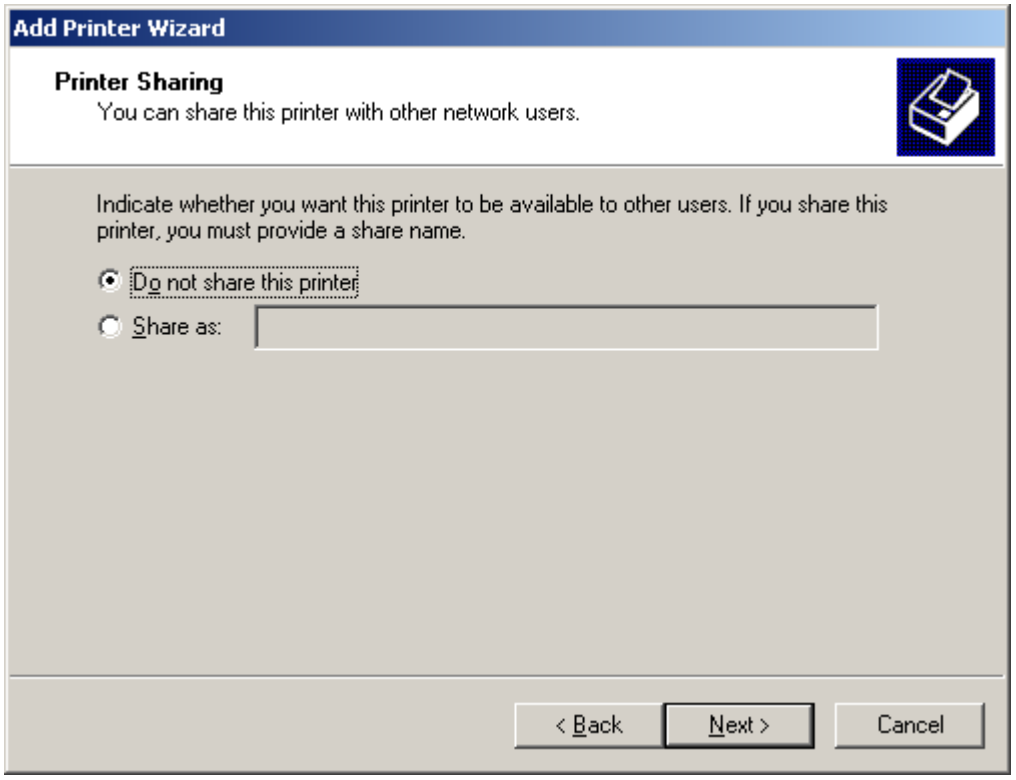

Add Printer Wizard
Printer Sharing
You can share this printer with other network users.
Indicate whether you want this printer to be available to other users. If you share this printer, you must provide a share name.
Do not share this printer
Share as:
< Back
Next >
Cancel

Figure 4-26 Share Printer for Add Printer Wizard

Click on Next

You can try to print a test page to the printer after your printer installed properly. See Figure 4-27 Print Test Page. It is OK not to print a test page in answering question Do you want to print a test page to No.

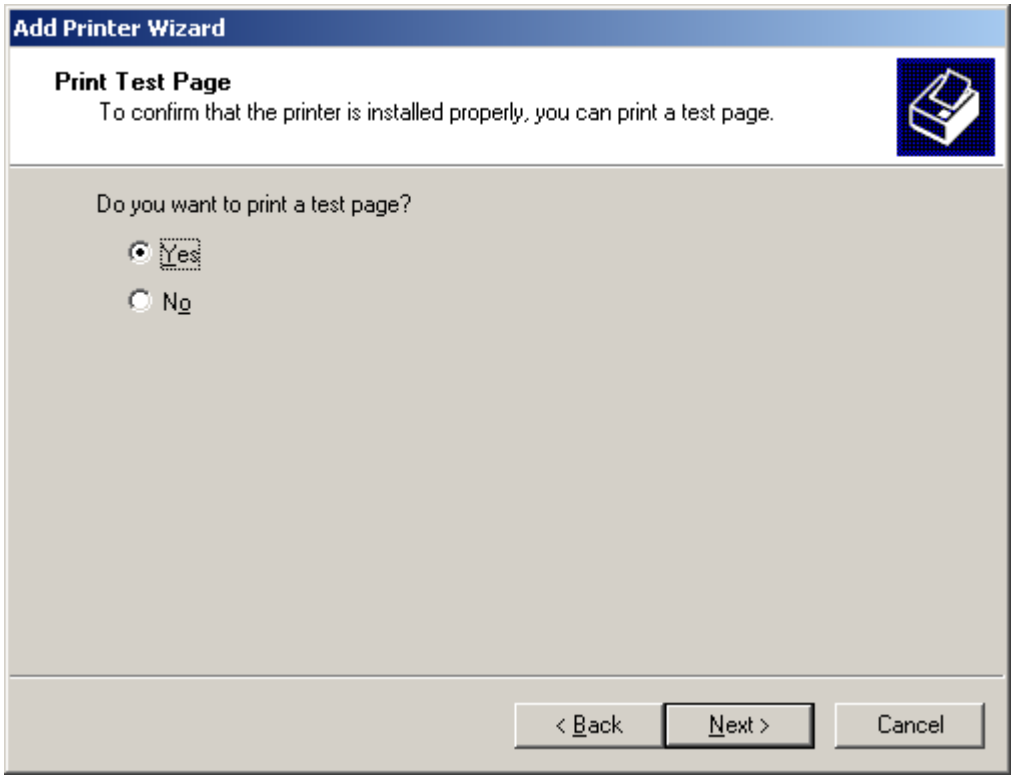

Add Printer Wizard
Print Test Page
To confirm that the printer is installed properly, you can print a test page.
Do you want to print a test page?
Yes
No
< Back
Next >
Cancel

Figure 4-27 Print Test Page for Add Printer Wizard

Click on Next

If you answer Yes to print a test page, see Figure 4-28.

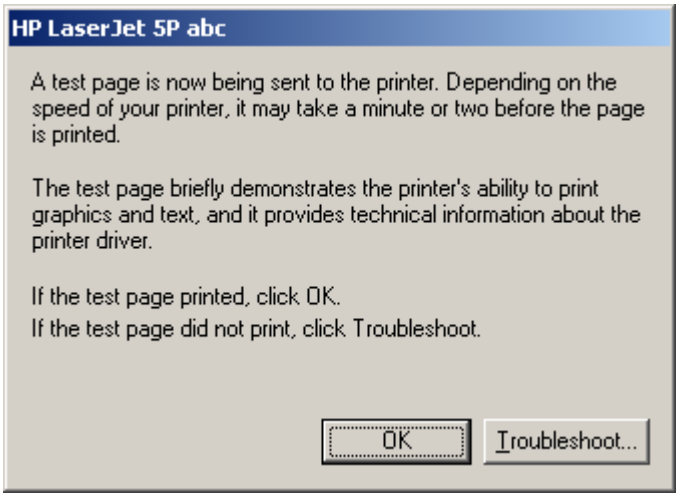

HP LaserJet 5P abc
A test page is now being sent to the printer. Depending on the speed of your printer, it may take a minute or two before the page is printed.
The test page briefly demonstrates the printer's ability to print graphics and text, and it provides technical information about the printer driver.
If the test page printed, click OK.
If the test page did not print, click Troubleshoot.
OK
Troubleshoot...

Figure 4-28 Printer print the test page

Click on OK

Complete the Add Printer Wizard. See Figure 4-29 Completing the Add Printer Wizard.

Figure 4-29 Completing the Add Printer Wizard

Click on Finish

Now you can print through the PS111W print server. The Figure 4-18 Printer Select Window (Add Port) window remains on the screen. Click on End to close it.

Chapter 5 UNIX Printing Using TCP/IP

This chapter explains how to configure and set up the NETGEAR PS111W Print Sever and your UNIX system if you are operating in a UNIX networking environment. The print server can work with most UNIX operating systems with the TCP/IP protocol, but the following protocols and printing methods are supported:

Protocols--DHCP, BOOTP, RARP, FTP, TCP, IP

Printing methods--LPD, FTP, DSI

Setting up your print server and UNIX PC requires a few extra steps and some decisions that must be made before configuring both your print server and your PC. In all network environments, the print server must be configured before configuring any PCs on your network. If your network:

Includes both PCs and UNIX systems

NETGEAR highly recommends that you configure the print server from a Windows PC as outlined in the instructions in Chapter 3 Web Management and Chapter 7 Using Advanced Management Tools." The administration program software assigns an IP address to the print server by using the NetBEUI or the IPX/SPX protocol for communication. IPX address resolution is done automatically by the workstation, and no local manual configuration is necessary. Configure any UNIX system in your network with the instructions provided in this chapter. See “Setting the Print Method” to choose a printing method.

Includes only UNIX systems or if you have PCs without Windows on your network

You must configure both your print server and all your PC systems with the instructions provided in this chapter. Before you can configure the print server (which must be done first) you must assign an IP address to it. (For information about IP addresses, refer to Appendix B “Understanding IP Addresses.”) Use one of the following two methods:

Assign active IP address resolution

With temporary IP address assignment, the print server sends out broadcast packets actively searching for a server to provide the print server with an IP address. The print server sends out DHCP packets, BootP packets, and RARP packets (in this sequence) to resolve its own IP address. This broadcast mechanism is conducted only upon reset or power cycle.

Assign a temporary IP address to your print server by referring to:

“Assigning an IP Address to the Print Server Using DHCP”

“Assigning an IP Address to the Print Server Using BootP”

“Assigning an IP Address to the Print Server Using RARP”

Assign passive IP address resolution

Assign a static IP address to your print server by referring to “Assigning an IP Address to the Print Server Using ARP”.

With all four methods of IP address resolution, the print server loses the IP setting after reset or a power loss. To permanently configure the print server and save the IP address assignment in the flash EEPROM of the print server, you must use FTP. Using FTP, you can modify the CONFIG file in the print server.

After you configure the print server as described in “Configuring Your Print Server Using FTP”, choose a printing method as described in Setting the Print Method” to configure each UNIX PC in your network.

5-1 Temporary IP Address Resolution

If the IP address is left at 0.0.0.0 (the default value), a temporary IP address is assigned when the print server is powered on. DHCP, BootP, and RARP are attempted in sequence for finding an address. The newer PS100 series print servers provide a new **Auto-IP** feature. If DHCP, BootP, and RARP cannot get an IP address, an internal IP address will be assigned automatically. The address will be in the range from 169.254.0.1 to 169.254.254.254 with subnet mask 255.255.0.0. Reset (power cycle) the print server to get an IP address.

Assigning an IP Address to the Print Server Using DHCP

Using Dynamic Host Configuration Protocol (DHCP) is possible only if you have a DHCP server with management software that allows you to take advantage of this feature. Otherwise, the IP address of the print server will be unknown, and connection to the print server is not possible. To use DHCP, turn on power to the print server; the DHCP server automatically assigns an IP address to it.
If you do not have a DHCP server and you are assigning an IP address to the print server, you can use BootP, RARP, or ARP.

Assigning an IP Address to the Print Server Using BootP

To assign an IP address using the Bootstrap Protocol (BootP):

Determine the physical address and the device name of the print server.

The factory default name and the physical address are shown on a sticker on the bottom of the unit. The default name on your device is PSxxxxxx.

Log in to the UNIX host as root.

Add the print server to the /etc/hosts file by adding to the file:

```
IP_Address NAME # Comment
```

Use these definitions for entering the information:

IP_Address is the IP address of your print server.

NAME is the name of your print server.

A sample entry is:

```
192.10.2.54 PS_Rm203 #Default name PS123456
```

In the example, a print server with an IP address of 192.10.2.54 is called PS_Rm203 and has a default name of PS123456.

Add to the Boot Table in the /etc/booptab file:

```
NAME:ht=ether:vm=rfc1024::ha=PA:ip=IP:sm=SM:gw=GW
```

Use these definitions for entering the information:

NAME is the name of your print server.

PA is the physical address of your print server.

IP is the IP address of your print server.

SM is the Subnet Mask IP address.

Refer to Appendix B “Understanding IP Addresses,” for additional information about assigning a Subnet Mask IP address.

GW is the Gateway IP address.

Refer to Appendix B “Understanding IP Addresses,” for additional information about assigning a Gateway IP address.

Start the BootP daemon (the usual command is BOOTPd) if the command in step 2 did not start the BootP process, and then reset the print server so that it obtains an IP address using BootP.

Compare the IP address to MAC address association to assure that an IP address has been assigned, using the ping command:

```
ping NAME
```

NAME is the name of the print server. You should receive a response. If you get a timeout message, the BootP procedure has failed. You can either follow the steps again for using BootP or use one of the other methods for assigning an IP address.

Proceed to “Configuring Your Print Server Using FTP” to configure the print server, if it has not yet been configured.

Assigning an IP Address to the Print Server Using RARP

To assign an IP address using the Reverse Address Resolution Protocol (RARP):

Determine the physical address and the device name of the print server.

The factory default name and the physical address are shown on a sticker on the bottom of the unit. The default name on your device is PSxxxxxx.

Log in to the UNIX host as root.

Add the print server to the /etc/hosts file by adding to the file:

```
IP_Address NAME # Comment
```

Use these definitions for entering the information:

IP_Address is the IP address of your print server.

NAME is the name of your print server.

A sample entry is:

```
192.10.2.54 PS_Rm203 #Default name PS123456
```

In the example, a print server with an IP address of 192.10.2.54 is called PS_Rm203 and has a default name of PS123456.

Add to the Ethernet Address table /etc/ethers:

```
00:c0:02:xx:yy:zz NAME
```

Use these definitions for entering the information:

00:c0:02:xx:yy:zz is the location of your print server.

NAME is the name of your print server.

Reset the print server by turning the power off and then on again.

When the print server reboots, it acquires an IP address using RARP.

To assure that an IP address has been assigned, check the IP address to MAC address association using the ping command:

```
ping NAME
```

NAME is the name of the print server. You should receive a response. If you get a timeout message, the RARP procedure has failed. You can either follow the steps again for using RARP or use one of the other methods for assigning an IP address.

Proceed to "Configuring Your Print Server Using FTP" to configure the print server, if it has not yet been configured.

Assigning an IP Address to the Print Server Using ARP

To assign an IP address using the Address Resolution Protocol (ARP):

Determine the physical address and the device name of the print server.

The factory default name and the physical address are shown on a sticker on the bottom of the unit. The default name on your device is PSxxxxxx.

Log in to the UNIX host as root.

Add the print server to the /etc/hosts file by adding to the file:

```
IP_Address NAME # Comment
```

Use these definitions for entering the information:

IP_Address is the IP address of your print server.

NAME is the name of your print server.

A sample entry is:

```
192.10.2.54 PS_Rm203 #Default name PS123456
```

In the example, a print server with an IP address of 192.10.2.54 is called PS_Rm203 and has a default name of PS123456.

Compare the physical address with the IP address of the print server, using the ARP command as follows:

```
arp -s NAME 00:c0:02:xx:yy:zz
```

Use these definitions for entering the information:

NAME is the name of your print server.

00:c0:02:xx:yy:zz is the physical address of the print server.

A sample entry is:

```
arp -s PS_Rm203 00:c0:02:12:34:56
```

To assure that an IP address has been assigned, check the IP address to MAC address association using the ping command:

```
ping NAME
```

NAME is the name of the print server. You should receive a response, but if you get a timeout message, the ARP procedure has failed. You can either follow the steps again for using ARP or use one of the other methods for assigning an IP address.

Proceed to "Configuring Your Print Server Using FTP," which follows.

5-2 Configuring Your Print Server Using FTP

FTP allows a user to log on to a remote host and to manipulate files on the host. The print server can act as an FTP host. Using FTP, you can access and modify the CONFIG file in the print server. Modifying the CONFIG file changes the configuration of the print server.
The limitations of print server support when using FTP are:

- Only one FTP user can connect to the print server at a time.
- Only command line FTP programs can be used. FTP programs that attempt to browse the file system are not supported.

Configuration Example

This section provides commands to use and responses to each command when you use FTP to connect to the print server.
Example instructions are:

Connect to the print server by entering the command:

```
ftp NAME or ftp IP_Address
```

You can connect using a name instead of an IP address only if your system has been configured to recognize the name to IP address association.

Enter the default name (on the base of the device) when you are prompted for the user name.

Press [Enter] when prompted for the password.

Copy the configuration file by entering the command:

```
ftp>get CONFIG
```

Quit copying the file by entering the command:

```
ftp>quit
```

Edit the CONFIG file by typing with a text editor.

NETGEAR recommends that you edit the CONFIG file to provide a permanent IP address to the print server. The CONFIG file is shown in “CONFIG File.”

Copy the CONFIG file back to the print server and then reset the device by using the commands:

```
ftp NAME
ftp>put CONFIG
ftp>get RESET
```

Quit by using the command:

```
ftp>quit
```

List of FTP Files and Commands Supported by the Print Server

Table FTP Files in the Directory lists the file names that appear in the directory.

FTP Files in the Directory

File Name	Purpose	Mode
CONFIG	Configuration file	Read/Write
PSINF	Device information	Read
DEFAULTC	Reset device to default configuration	Read
RESET	Reset device	Read
PASSRESET	Clear password	Read
SETIP	Save current IP address	Read

Table FTP Commands lists the case-sensitive commands that are implemented. When a command requires a parameter, the parameter is shown in italics.

FTP Commands

Command	Function
dir	Lists files as shown in table FTP Files in the Directory.
get FILENAME	Retrieves a file. The only files that can be retrieved are CONFIG and PSINF.
get RESET	Resets the print server and terminates the current connection.
get PASSRESET	Clears the password.
get SETIP	Sets the current IP address as a static IP address. To avoid an address conflict, do not use this command if a DHCP server assigned the IP address to the print server.
put CONFIG	Copies the CONFIG file to the print server, overwriting the existing CONFIG file. After using this command to write a new configuration file, use the get RESET command; all LEDs should turn on and then off while the print server is resetting.
put PASSWORD	Copies the password file to the print server and gives it a new password. Passwords can be up to 19 bytes in length.
put filename Ln	Copies the filename file to the printer connected to n port and prints the file.
quit	Terminates the current FTP session.

Other FTP commands cannot be used, and they return an Invalid Command error message.

5-3 Setting the Print Method

The following three printing methods can be used in any environment:

Line Printer Daemon (LPD)

LPD is a standard print method for most UNIX systems. The benefit of this method is that it eliminates the need to install additional software on the host.

File Transfer Protocol (FTP)

FTP is also a standard print method in most UNIX systems, but it is not recommended except as a test and backup method of printing.

Direct Socket Interface (DSI)

DSI is a UNIX-based method of providing a direct connection between a host computer and a printer. The host and the print server establish a TCP connection, using a special socket number. All data sent over this connection is treated as print data and sent transparently to a logical printer defined on the print server.

Of the three choices, LPD and DSI work well with a large number of users because they both employ print queue processes. FTP does not implement a print queue; if the printer is busy, the print command may fail.
The three methods are explained more fully in the following sections.

LPD Configuration and Printing

LPD is a built-in printing protocol for most UNIX systems including BSD type UNIX. It is also supported in Windows NT 3.5 or later. The following sections provide information about configuring LPD on:

- IBM AIX 4.15
- System V
- BSD

Configuring LPD on IBM AIX 4.15

Before proceeding, make sure that the print server has been assigned an IP address.
To set up your AIX system for LPD printing:

Type the name of your print server, adding it to the */etc/hosts.lpd* file.

Start the LPD daemon if it is not running, using the command:

```
start src -s qdaemon
```

Start the system administration tool smith and select Print Spooling.

Create the required number of queues (one for each logical printer) by selecting Add a Print Queue, Remote (Printer attached to Remote Host), and then Standard Processing.

Use these definitions for entering the information:

Name of queue to add

Use a single-word queue name that indicates the printer attached.

Hostname for remote server

Print server name as used in /etc/hosts.lpd.

Name of queue on remote server

It is the logical printer number (L1 to L3 or L1 to L8) to service this queue.

Type of print spooler on remote server

Use the default value.

Make sure the logical printers are configured in the print server.

Refer to the information provided in table FTP Commands for information about configuring logical printers.

Print using the command:

```
lp -d printer_queue file_name
```

Use these definitions for entering the information:

printer_queue is one of the entries used in Name of queue to add.

file_name is the file you want to print.

Configuring LPD on System V

Before beginning LPD Setup, make sure that an IP address has been assigned to your print server and that the following statements apply:

The remote host name is the name of the print server.

The remote printer name is the print queue name for the logical printer.

Logical printers are configured on the print server itself.

You identify the service type as BSD if your UNIX system asks for the LPD type.

The LPD protocol that the print server uses meets BSD system standards.

Table Sample Commands for Using LPD on System V shows sample commands when using LPD. The definitions used in the sample commands are:

printer_name is the name of the print queue serviced by the print server.

Spooler_directory is the name of the directory used to spool the print jobs.

Sample Commands for Using LPD on System V

Action	Sample Command

Stop Print Services	/usr/lib/lpshut
Add a System Printer	/usr/lib/lpadmin -p printer_name -v /dev/null
Restart the Print Services	/usr/lib/lpsched
Enable printing to the new printer device	enable printer_name
Start accepting jobs for the new printer device	accept printer_name
Create a spooling directory	mkdir /usr/spool/Spooler_directory
Make spooling daemon the owner of this directory	chown daemon /usr/spool/Spooler_directory
Create read/write permissions	chmod 775 /usr/spool/Spooler_directory
Give permissions to LPD processes	chgrp daemon /usr/spool/Spooler_directory
Add remote printer(s). (Repeat this process for each logical printer/print queue combination that you want to create.) Sample command should be entered as one line, using a tab character where shown.	Add to the /etc/printcap file: printer_name|Remote_Printer_Alias:\ [Tab] :lp=:\ [Tab] :rm=PS_NAME:\ [Tab] :rp=Logical_Printer_name:\ [Tab] :sd=Spooler_directory:\ [Tab] :mx#0 Use these definitions for entering the information: printer_name is the print queue name used to store jobs for the corresponding logical printer. PS_NAME is the print server name defined in /etc/hosts. Logical_Printer_name is the logical printer name on the print server (L1 to L3 or L1 to L8, depending on the print server that you are using). Spooler_directory is the directory you created.

Configuring LPD on BSD

Make sure that an IP address has been assigned to the print server and the following statements apply:

The remote host name is the name of the print server.

The remote printer name is the logical printer (L1 to L3 or L1 to L8).

You identify the service type as BSD if your UNIX system asks for the LPD type.

The LPD protocol that the print server uses meets BSD system standards.

Enter the service type as BSD if asked for the LPD type.

Table Sample Commands for Using LPD on BSD shows sample commands when using LPD. The definitions used in the sample commands are:

printer_name is the print queue serviced by the logical printer on the print server.

Spooler_dir is the name of the directory used to spool the print jobs.

Sample Commands for Using LPD on BSD

Action	**Sample Command**
Create a spooling directory	Mkdir /usr/spool/Spooler_dir
Set spooling daemon as owner of this directory	Chown daemon /usr/spool/Spooler_dir
Create read/write permissions	Chmod 775 /usr/spool/Spooler_dir
Give permissions to LPD processes	Chgrp daemon /usr/spool/Spooler_dir
Add remote printer(s)	See adding remote printers in table Sample Commands for Using LPD on System V

Start lpc print mechanism	lpc start printer_name

Printing Using LPD

For LPD printing instructions, refer to your UNIX manual. An example command that is used for a BSD UNIX system is:

```
lpr -P printer_name filename
```

The definitions used are:

printer_name is the name of the print queue defined on the UNIX host.

filename is the name of the file you want to print.

An example command with parameters is:

```
lpr -P Marketing /etc/hosts
```

In the above example, the */etc/hosts* file is sent to the Marketing printer queue. It is then sent to the logical printer associated with this queue.

Printing Using FTP

Using FTP to print lets you send print jobs to the printers directly. Because there is no spooling, if the printer is not ready, the print job is terminated immediately. The advantage of FTP is that no host configuration is required.

To print using FTP, use the command lines:

```
#ftp Name
ftp>put FileName Ln
```

The definitions used are:

Name is the name of the print server.

FileName is the file you want to print.

Ln is the logical printer you want to print to.

Printing Using DSI

Logical printers must be configured on the print server. Even if you are using the PS100 series Print Sever that normally supports up to eight logical printers, using DSI to print limits the support to three logical printers.

Socket numbers are defined as listed in table Socket Number Definitions.

Socket Number Definitions

Logical Printer Number	Socket Number
1	4010
2	4020
3	4030

Note: Some of the features described in this chapter may not available to every NETGEAR Print Server model.

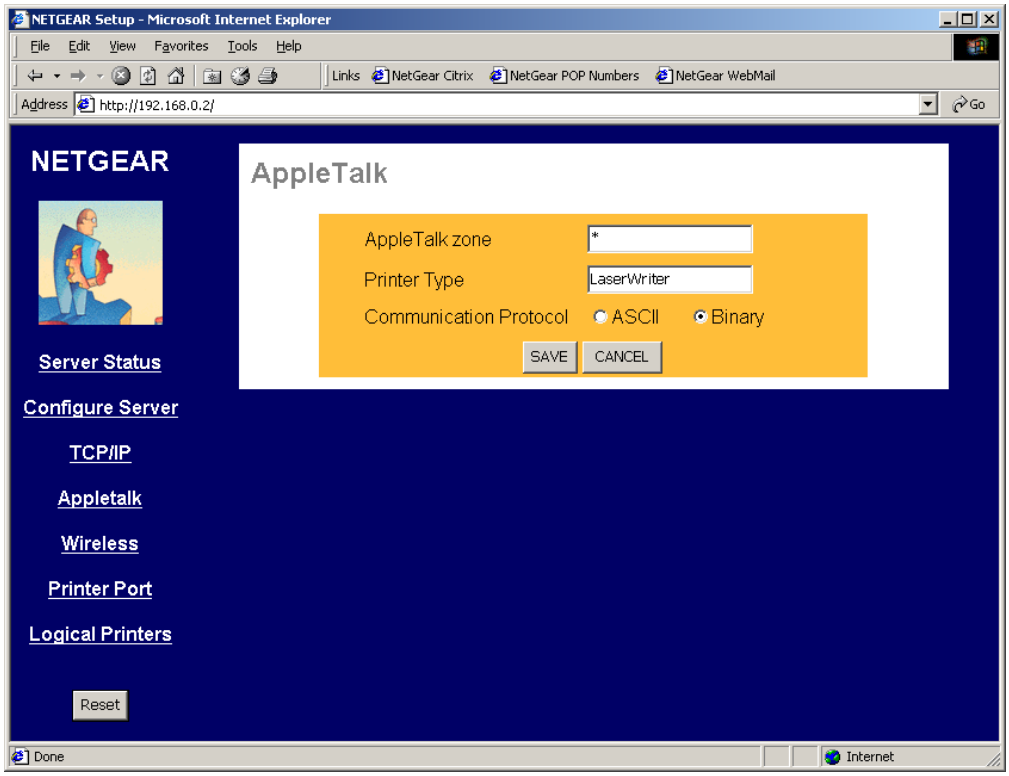
Chapter 6 AppleTalk Printing

This chapter contains information about configuring and using your NETGEAR PS100 series print server in an AppleTalk networking environment.

6-1 Setting up Print Server for AppleTalk

There are 3 different ways to configure AppleTalk on a NETGEAR PS100 series print server:

The recommended approach is through the print server's browser interface in an IP networking environment. For more information, please refer to chapter 3, “Web Management for Print Server”.



6-1 Browser Interface for Configuring AppleTalk

Through the NETGEAR Print Server Administration Program on a PC with Microsoft Windows. For more information, please refer to chapter 7, “Using Advanced Management Tools”.

Through the NETGEAR PSTool Utility for the Macintosh environment. Described in this chapter.

AppleTalk printing is enabled by default in NETGEAR Print Servers that support AppleTalk printing and the printers attached to the print servers are advertised in the default zone on the AppleTalk network.
Configuration will only be necessary if the name of the print server is to be changed from the default, or if you have an AppleTalk network connected by AppleTalk routers and you wish the printers

attached to the print server to be advertised in a specific AppleTalk zone, or if you need to change the communication protocol used between the print server and the printer.

6-2 Setting up Host Computer

The host Apple computer to be setup for AppleTalk printing must be running System 7 Operating System or later.

Install any printer driver provided by your printer manufacturer for the Mac OS©.

Click the Apple icon and choose Control Panel.

Click Network.

Ensure that EtherTalk is selected under AppleTalk Connection.

Click Chooser. The Chooser panel will open.

Click on either the LaserWriter 8 icon (recommended) or the LaserWriter 7 icon. LaserWriter 8 makes use of the fonts installed in the printer itself, so the printing response time is quicker. LaserWriter 7 uses the fonts installed in the computer, which increases network traffic and takes more printing time.

Select printers attached to the NETGEAR Print Server from the printer list by clicking on the appropriate name.

Printers attached to the NETGEAR printer are advertised on AppleTalk networks as xxxxxx_P1, xxxxxx_P2, xxxxxx_P3, where xxxxxx is the name of the print server. e.g. if the NETGEAR Print Server is a 3 port model and the printer server name is PS543283, the printers attached to it will be advertised as PS543283_P1, PS543283_P2, PS543283_3. The default name of the print server's name is recorded on a label on the bottom of the print server as "Device Name". This name is consisted of 8 digits and/or numbers.

Click on the Close box.

6-3 Using PSTool Utility

This section describes how to use the NETGEAR PSTool Utility for Apple Computers to configure AppleTalk on a NETGEAR Print Server. It is not necessary to use the NETGEAR PSTool Utility to manage AppleTalk printing if your NETGEAR Print Server can be managed via the web browser interface or if you have Windows workstations running the NETGEAR Print Server Administration program.
The NETGEAR PSTool Utility is a program that runs under the Mac OS©. You first edit a NETGEAR Print Server configuration file using a text editor such as SimpleText, then use the NETGEAR PSTool Utility to send the configuration file to the NETGEAR Print Server. The procedure is as follows:

Copy the following files from the Utility\Apple folder on the Print Server Resource CD-ROM to an appropriate folder on your Apple computer. Your Apple computer must be running System 7 or later Mac OS©.

PSTool

CONFIG.2P if configuring a 2 port print server, or CONFIG.3P if configuring a 3 port print server.

Use Chooser to select the desired Print Server.

Double click the CONFIG.2P or CONFIG.3P file that was copied over in step 1, and edit it. Figure 7-1 is an example of the CONFIG.3P file. DO NOT modify the first line and last line of the file, or change the number at the beginning of each line.

```
begin CMD
0001 Device Name: xxxxxxxx
3000 Apple Zone : *
3101 AP_PCOMM1: No
3102 AP_PCOMM2: No
3104 AP_PCOMM3: No
9002
```

Sample CONFIG.3P Configuration File

Save the file.

Double click the icon for PSTool.

Click the Printer submenu and choose Download Postscript File. A panel will appear with a list of files.

Click the CONFIG file file that you edited in step 3. Then click Download.

6-4 PSTool Utility CONFIG File Format

The entries of the config file are listed and described in table 7.1. This example is for the 3 port model of the NETGEAR Print Server.

PSTool Utility Config File Entries

Entry inConfig File	Description
begin CMD	Do not change this line.
0001 Device Name: xxxxxxxx	Replace xxxxxxxx with the desired device name. The Device Name will initially be the Default Server Name. The Default Server Name is shown on a sticker on the base of the device. The Device Name can be changed, but the new name must not exceed 16 characters in length
3000 Apple Zone: *	The default value "*" allows all AppleTalk zones to access the Print Server's printers. To restrict access to a particular zone, replace the * with the desired zone name.
3101 AP_PCOMM1: No 3102 AP_PCOMM2: No 3104 AP_PCOMM3:	These settings determine whether the port uses ASCII or Binary Communication Protocol. Enter No for ASCII or Yes for Binary. The lines corresponds to port 1, 2 and 3 of the print server. Binary communication is twice as fast as ASCII ASCII communication is more reliable The computer, Print Server and printer MUST all be configured to use the SAME protocol.
9002	Do not change this line.

Note: NETGEAR does not support PS101 Print Server for AppleTalk printing environment.

Chapter 7 Using Advanced Management Tools

This chapter describes in more detail the two print server management programs bundled with NETGEAR PS100 series print servers. These programs are included on the Print Server Resource CD. The two programs described in this chapter are:

- NETGEAR Print Server Administration Program

  This software program is a print server administration program based on Windows 95, Windows 98, Windows NT, or Windows 2000. It runs on any of the four protocols that the print server supports.

- IPSetup

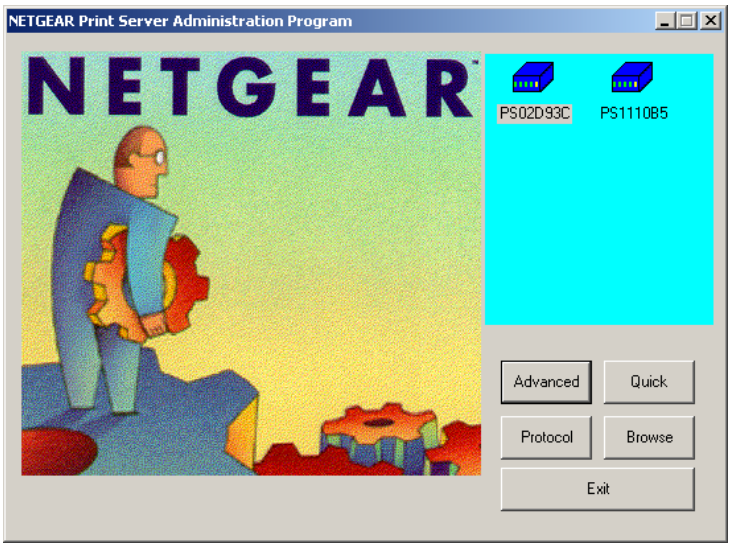
  This program is to the IP address of the Print Server manually from Microsoft Windows.

7-1 Configuration Using the NETGEAR Print Server Administration Program

Before you begin this section, you must first install the NETGEAR Print Server software on your PC, using the supplied CD-ROM.
To start the NetGear Administration Program:

- Click on Start
- Move along the program folders to highlight the NetGear program folder
- Click on the icon for the Print Server Administration program

As illustrated below, the main screen of the NetGear print server setup utility opens and searches the network for NETGEAR print servers.



NETGEAR Print Server Administration Program

All active NETGEAR print servers are listed on the screen as shown. If there is any print server missing from the screen, you may click on the Browse button to scan the network one more time. By default, the NetGear Administration Program only browses the network with NetBEUI to minimize unnecessary packets on the network.
If you still do not see all the print servers, the print server that you are trying to configure might have the default NetBEUI protocol disabled. If the protocol is disabled, click on the Protocol button to enable browsing with IPX/SPX and TCP/IP. Make sure that the IPX/SPX and TCP/IP protocols are

also enabled and bound to the network adapter card in your Windows 95, Windows 98, Windows NT, or Windows 2000 system.

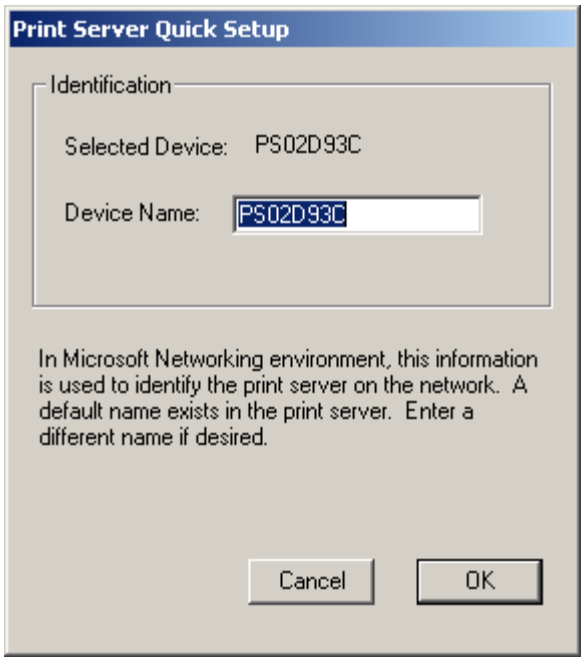
Buttons

Advanced Button

Click on the Advanced button for detailed full configuration of the selected Print Server. See the later section 7-2 Advanced Print Server Configuration for more information about the Advanced option.

Quick Button

Click on the Quick button to open the Quick Setup Screen to perform a quick configuration of the print server in a Microsoft network running the NetBEUI protocol.
Clicking the Quick Setup button will reveal a screen like the following.

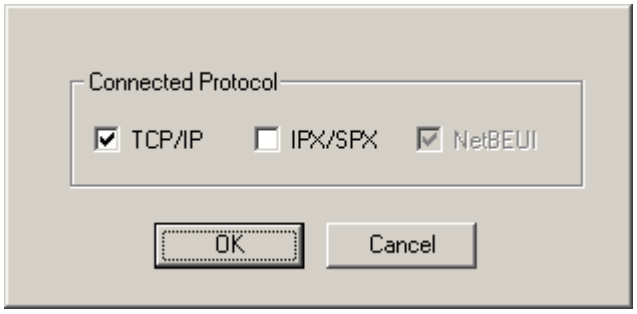

Print Server Quick Setup
Identification
Selected Device: PS02D93C
Device Name: PS02D93C
In Microsoft Networking environment, this information is used to identify the print server on the network. A default name exists in the print server. Enter a different name if desired.
Cancel
OK

Quick Setup Screen

Enter the required *Device Name*, and click "OK". The *Device Name* is how users on the network will see this Print Server on the network.

Protocol Button

This screen allows you to disable protocols which are not used on your network. An example screen is shown below.



Protocol Screen

The protocol currently used for communication between your PC and the Print Server is Enabled and grayed out, so it cannot be disabled.

Browse Button

Use this button to re-scan the network and update icons for any Print Servers located.

Exit Button.

The Exit button ends the NetGear setup utility.

7-2 Advanced Print Server Configuration

From the main menu, click on the Advanced button to use the advanced configuration procedure. The Advanced Print Server Configuration screen opens.
The Advanced Print Server Configuration screen contains the fields listed on tabs that can be selected in any order to customize the configuration of the print server. The following field tabs are provided by the Advanced Print Server Configuration screen:

- System
- TCP/IP
- NetBEUI
- Logical Port
- Physical Port
- Wireless

Each tab is described in the following sections.
There are two control buttons associated with every tab, and there is a "Return to Main Menu" button at the bottom of the tab. The function of each button is described in the table bellow.

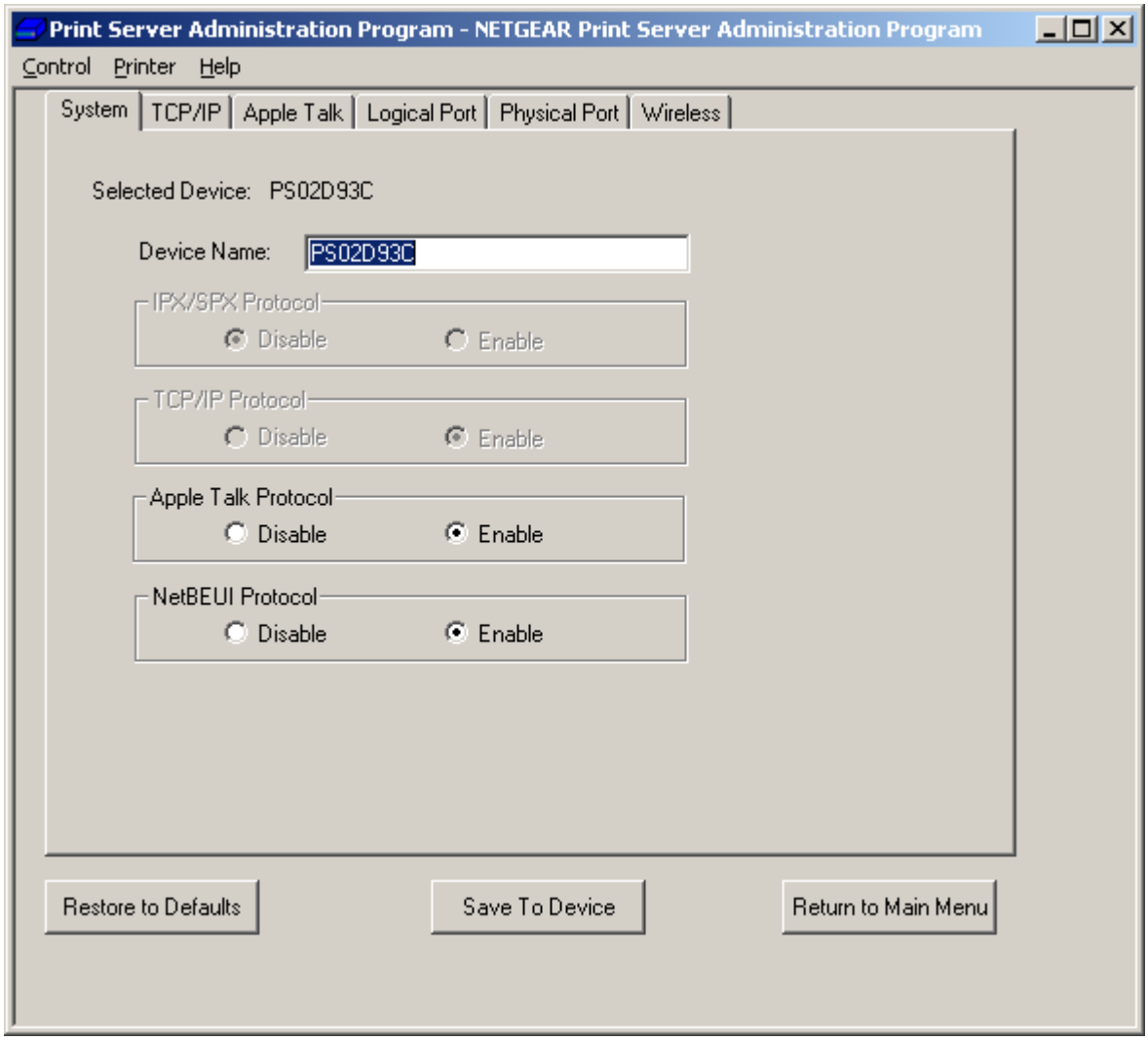
Control Buttons on All Tabs

Field	Description
Restore to Default	This button appears on many screens. Clicking it replaces the onscreen values with the default settings. The tab settings are not saved until you click on the Save to Device button. The quickest way to set all device values to the factory default setting is to click on the Configuration selection on the menu bar and select Restore Factory Default.
Save to Device	Click this button to write any changed configuration information to the print server. If you switch to another tab without clicking on the Save to Device button, all new settings are lost.
Return to Main Menu	Click this button to return to the print server administration main menu. If you want to configure another print server, you must click on this button to return to the main menu and select another print server.

Any configuration change is lost unless you click on the Save to Device button at the bottom of the field window to send the configuration to the print server. When moving into a new field screen, all settings in the previous screen are lost. It is essential that you make a decision on the present field screen whether to abandon or save the new parameters into the print server.
The menu bars and their fields are described in the following sections.

System Tab

The System tab contains the fields to change the print server name and activate or disable the various networking protocols supported by the print server.



System Tab Window

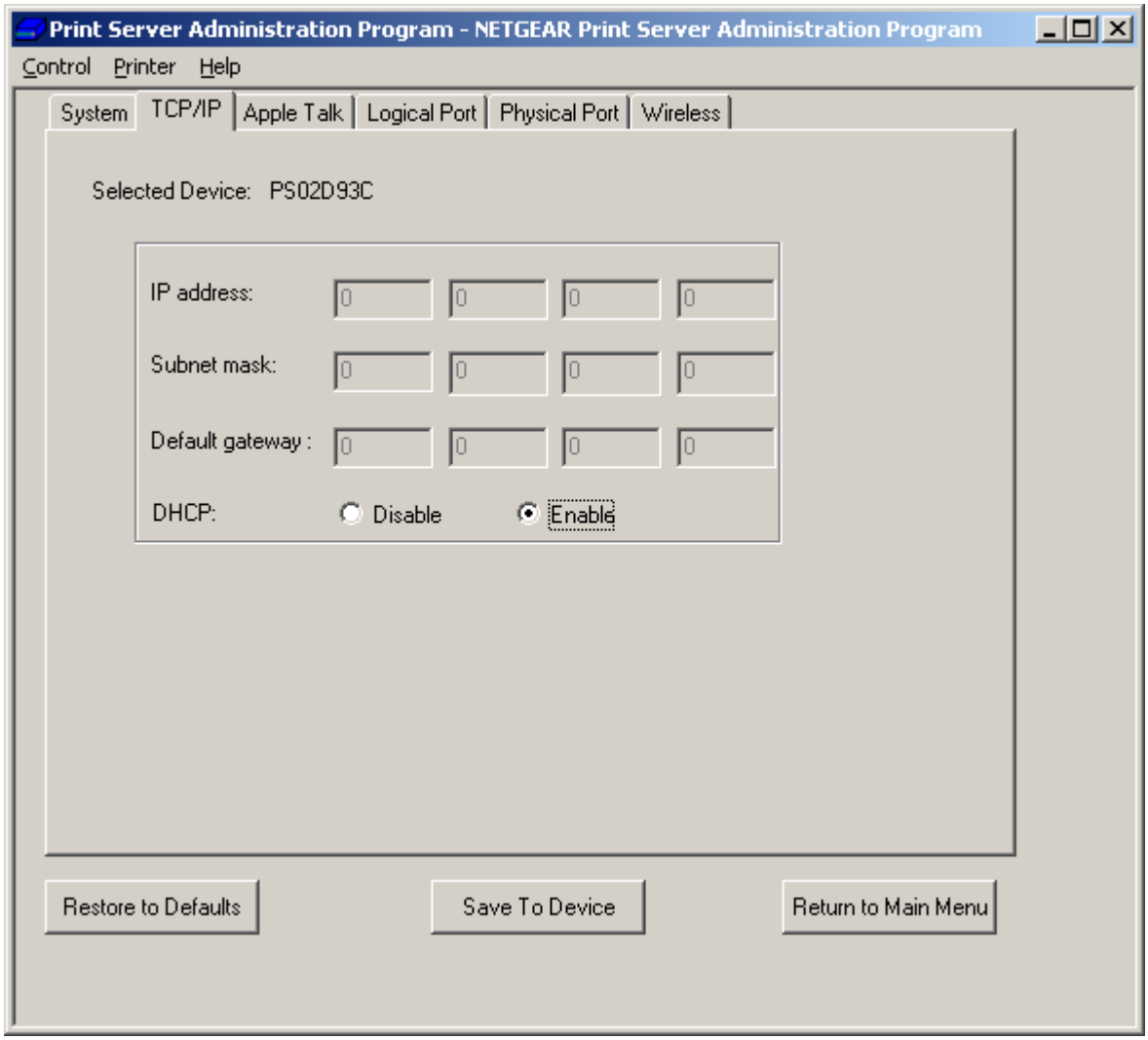
System Tab Fields

Field	Description
Device Name	Choose a descriptive name for the router for identification purposes (for example, EngPrsv). This name is used in all protocols to identify the specific print server. There is a factory default name. For any change, NETGEAR recommends that a name be determined before setting the print server in any network. This name should be no more than 16 characters with at least a non numeric letter. Spaces are not allowed, but dashes (-) and underscore marks (_) are accepted.
IPX/SPX Protocol	Choose to enable or disable the IPX/SPX protocol used in the NetWare environment. This selection is always shadowed to indicate that the IPX/SPX protocol is always active and cannot be disabled.
TCP/IP Protocol	Choose to enable or disable the TCP/IP protocol. TCP/IP is used for UNIX networking and Microsoft networking. The factory default is Enable.
NetBEUI Protocol	Choose to enable or disable the NetBEUI protocol. NetBEUI is primarily used in a small-scale Microsoft networking environment.
AppleTalk	Choose to enable or disable the AppleTalk Protocol. AppleTalk is used in small networks of Apple

Protocol	computers. The factory default is enable.

TCP/IP Tab

This tab allows configuration for the TCP/IP network protocol.. For further information about TCP/IP, refer to Chapter



TCP/IP Tab Window

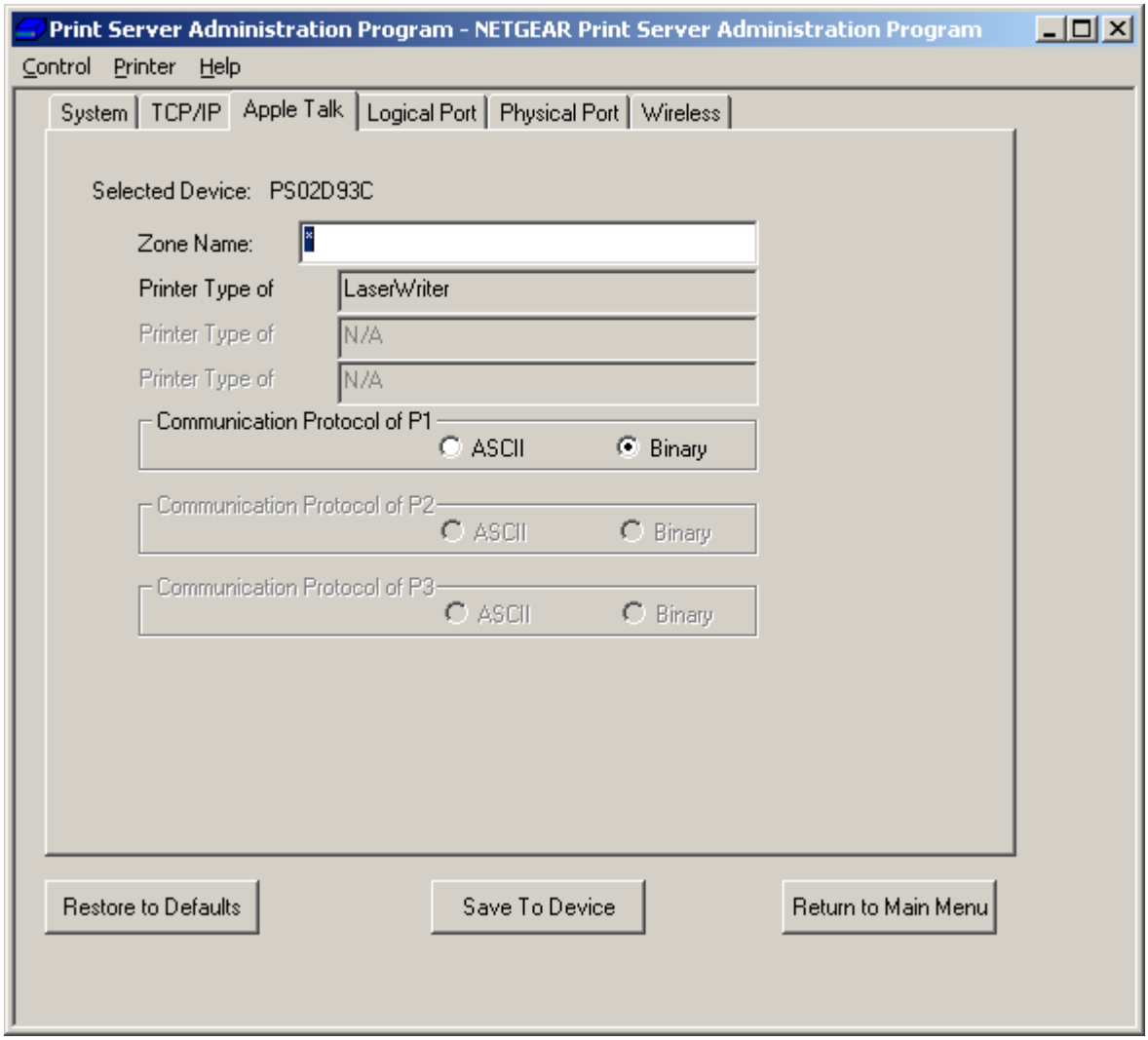
TCP/IP Tab Fields

Field	Description
DHCP	This field allows you to enable or disable the print server's ability to get its IP address from a DHCP (Dynamic Host Configuration Protocol) server. When disabled, you can provide a fixed IP address in the following fields.
IP Address	This IP address is assigned to the print server. If you have a private LAN and do not plan to connect to the TCP/IP-based internet, NETGEAR recommends that you use the address from the IETP-designated private addresses (for example, 192.168.x.x or 10.x.x.x).

Subnet Mask	This subnet mask defines the range of addresses that are reachable on your local LAN.
Gateway Address	This IP address is what the print server uses for stations with IP addresses not reachable on your local LAN.

AppleTalk Tab

The AppleTalk tab is used to configure the AppleTalk zone that the print server will appear in and the communication protocol used on the printer port. For further information about AppleTalk printing, refer to Chapter 7, "AppleTalk Printing".



AppleTalk Tab

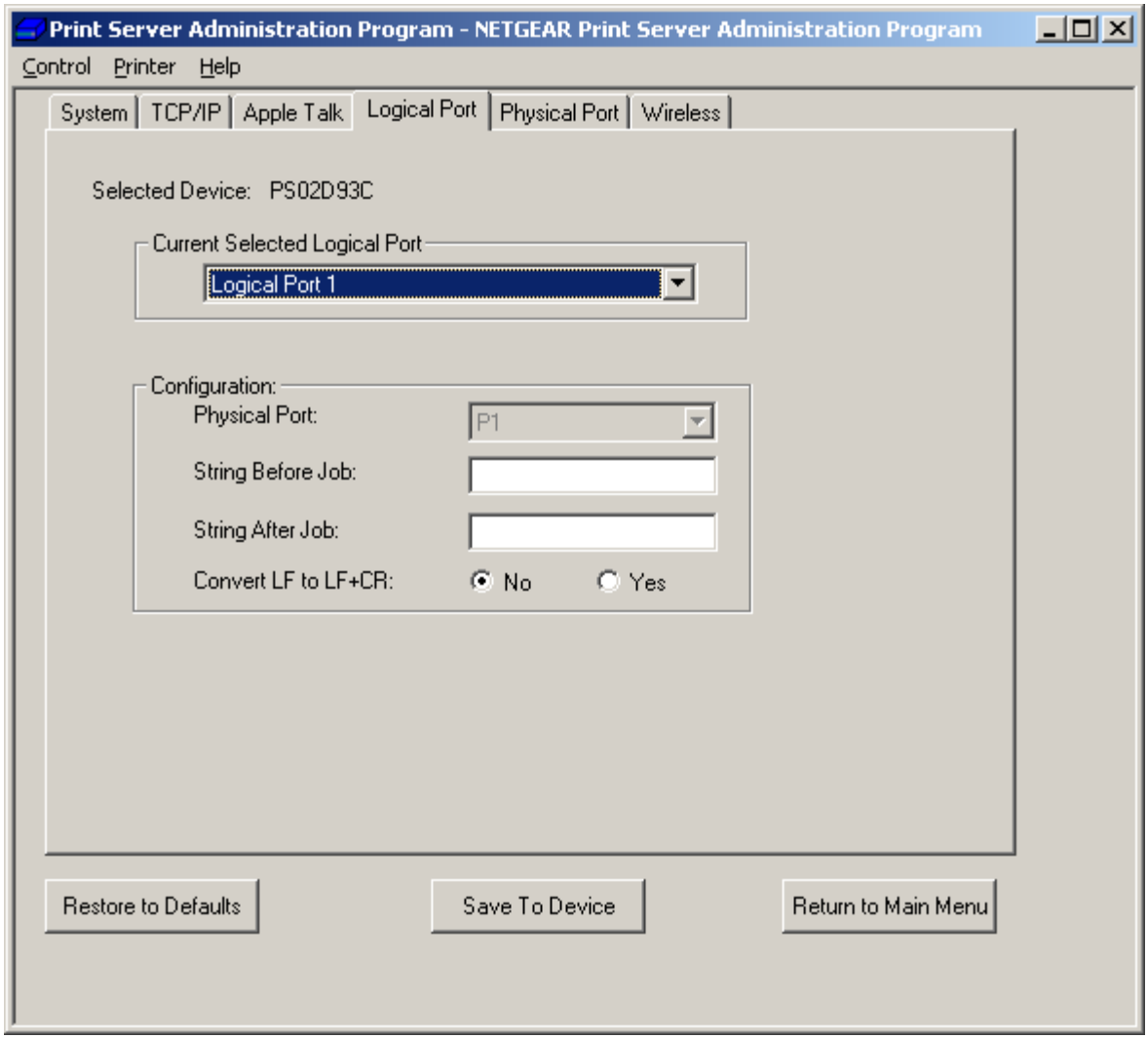
AppleTalk Tab Fields

Field	Description
AppleTalk Zone	The AppleTalk zone that the print server will appear in. To put the print server in the default AppleTalk zone of the AppleTalk network the print server is connected to, enter a single asterisk.

Printer Type	These are text fields, used to describe the printer driver used for each port. Currently the only printer driver supported for AppleTalk is LaserWriter.
Communication Protocol	Sets whether the port uses ASCII or Binary Communication Protocol. Binary communication is faster than ASCII, but ASCII communication is more reliable. The default is ASCII.

Logical Port Tab

Logical printers (Logical Ports) can be used under Linux or Unix. The Print Server supports 3 Logical Ports. This screen allows configuration of Logical Ports.



Logical Port Tab Window

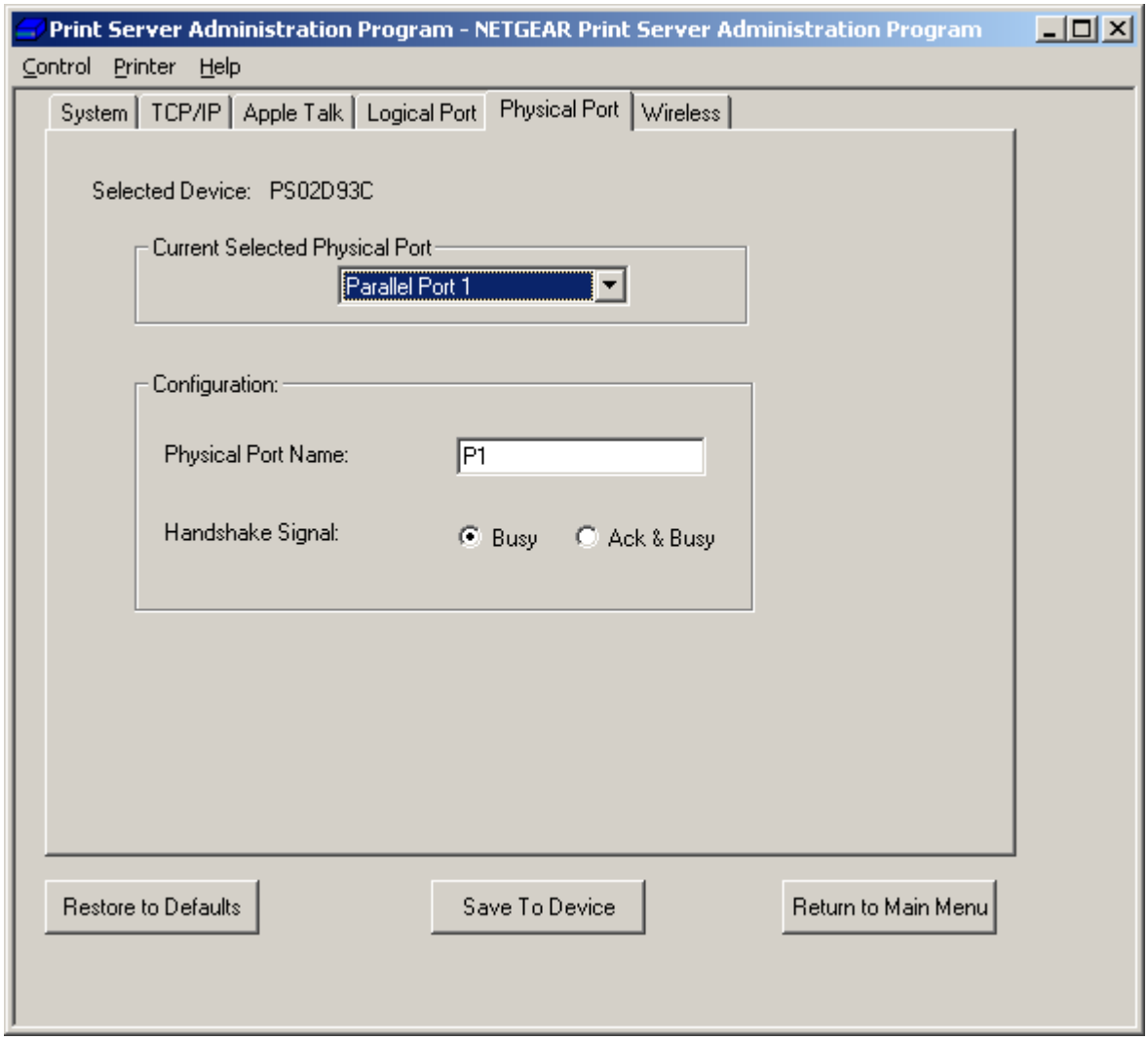
Logical Port Tab Fields

Field	Description
Current Selected Logical Port	Selects the logical port to be configured. Eight logical ports are available for print servers with two printer ports; three logical ports are available for one printer port print servers.

Physical Port	Selects which physical printer port the logical port is mapped into. Converts LF to LF+CRAdd a carriage return (CR) every time the line feed (LF) character code is received by the print server when any print data is sent to this logical port.
String Before Job	Provides the control character string to send to the printer before the first character of the job is sent to the printer. One example of such an application would be switching to landscape mode when printing to the logical port. The character string must be in hexadecimal format as in these examples: ASCII = [Esc]&l0O Hexadecimal = 1B266C304F ASCII = [Esc]&l1O Hexadecimal = 1B266C314F
String After Job	Provides the control character string to send to the printer after the last character of the job is sent to the printer. The character string must be in hexadecimal format as illustrated in the String Before Job example above.

Physical Port Tab

This tab allows you to set the "Handshake Signal" used for communication between the Print Server



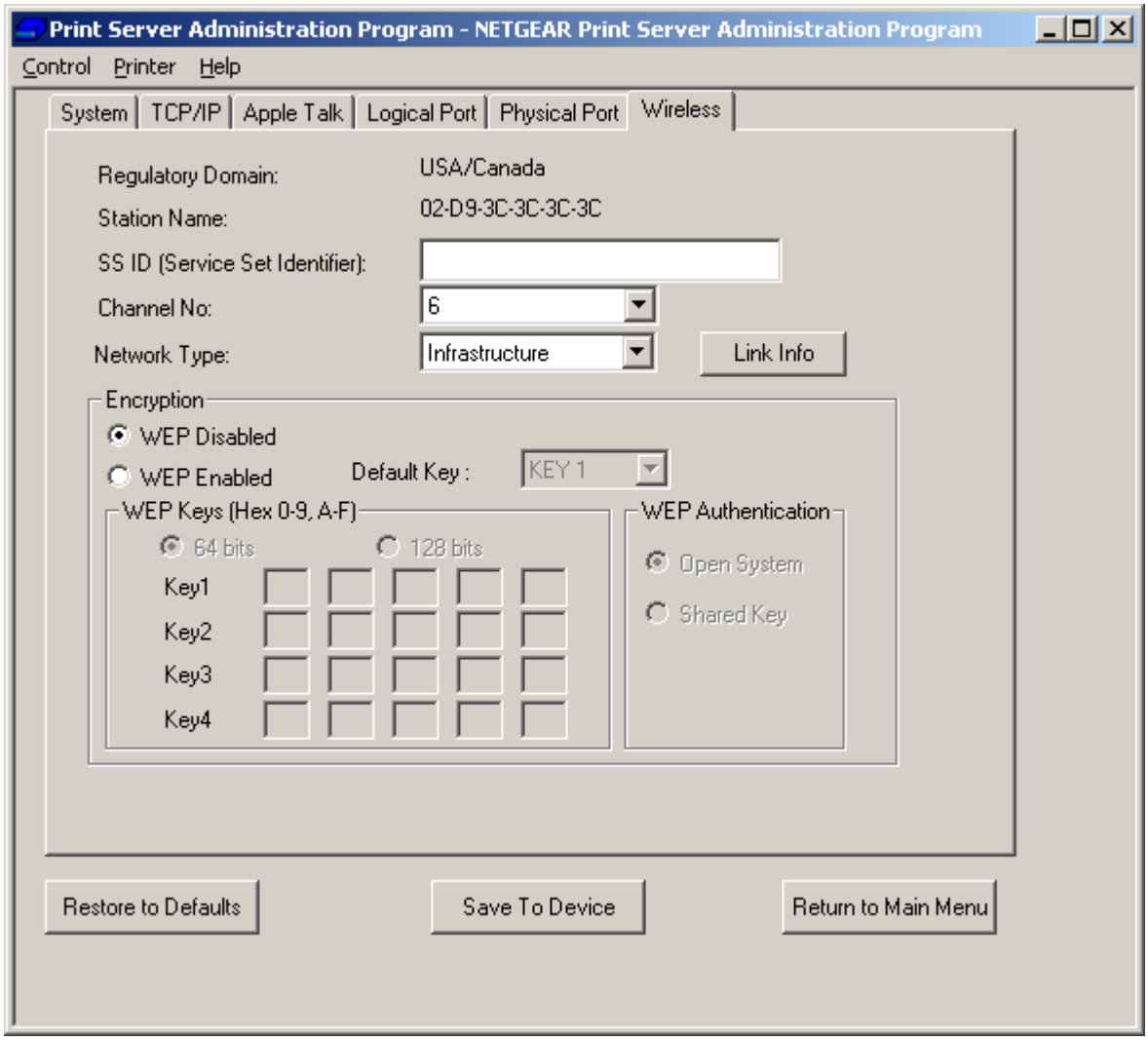
Physical Port

Physical Port Tab Fields

Field	Description
Current Selected Physical Port	Selects the physical port to be configured.
Physical Port Name	If required, you can change the name of the Physical Port.
Handshake Signal	The default setting is "Busy". This should only be changed to "Ack and Busy" if advised to do so by Technical Support.

Wireless Tab

This tab allows configuration of the Wireless settings for your Print Server. An example screen is shown below.



Wireless Tab

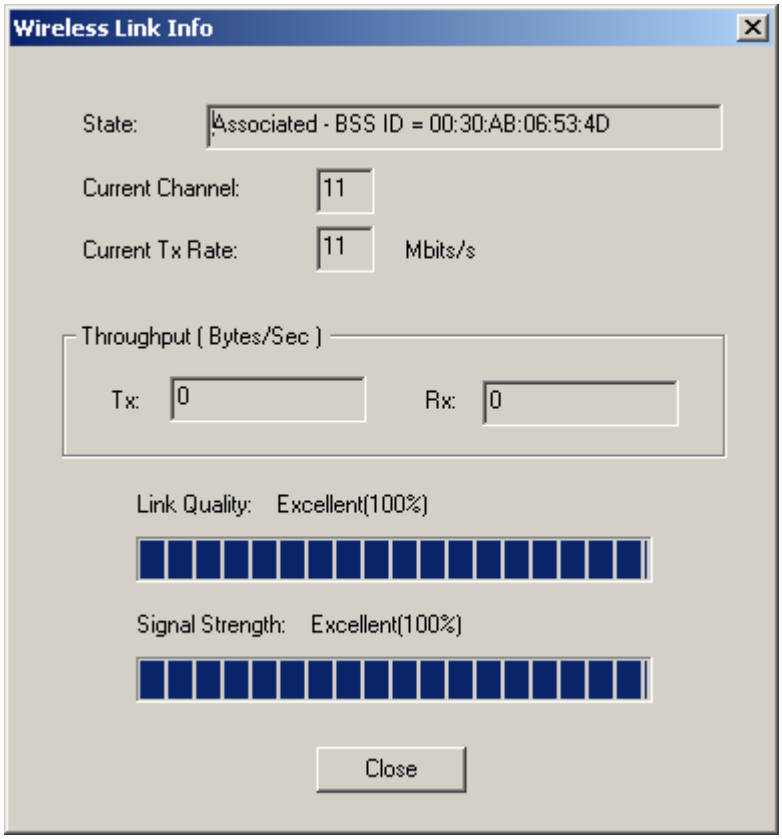
Wireless Tab Fields

Field	**Description**
Regulatory Domain	It is illegal to use this device in any location outside of the regulatory domain.
Station Name	The name used to identify this Wireless station.
SSID	If using an ESS (Extended Service Set, with multiple access points) this ID is called an ESSID (Extended Service Set Identifier). To communicate, all Wireless stations MUST use the same SSID/ESSID. Change this value, or change the other Wireless stations, to ensure each Wireless station has the same value. The default value is "null", so the Wireless station can join any Ad-hoc group. Note! The SSID is case sensitive.

Channel No	To communicate in "802.11 Ad-hoc" or "Ad hoc" mode, all Wireless stations MUST use the same Channel number. If using "802.11 Ad-hoc" or "Ad-hoc" mode, select the value you wish to use on your Wireless LAN. If using "Infrastructure" mode, the Channel is selected automatically, to match the Channel used by the Access Point. If you experience interference (shown by lost connections and/or slow data transfers) you may need to experiment with different channels to see which is the best.
Network Type	Select the correct value for your Wireless LAN. 802.11 Ad-hoc mode is used when there is no Wireless Access Point, and each Wireless station communicates directly with other Wireless stations. This is the current standard. Ad-hoc mode is used when there is no Wireless Access Point, and each Wireless station communicates directly with other Wireless stations. This is the older standard. Infrastructure mode is used when each Wireless station connects to the Wireless Access point. This also provides access to the wired LAN.
Link Info Button	This will display information about the current wireless connection. See below for details.
WEP Disabled/ Enabled	If Disabled (default), data is NOT encrypted before being transmitted. If Enabled, you must provide either the 64 Bit key table or the 128 Bit keys, as described below. The key is used to encrypt the data before transmission.
64 Bit	If selected, data is encrypted, using the default key, before being transmitted. The receiving station must be set to 64 Bit Encryption, and have the same Key value in the same position in its key table. Otherwise, it will not be able to decrypt the data. Default Key - select the key you wish to be the default. Transmitted data is ALWAYS encrypted using the Default Key; the other Keys are for decryption only. Key Table: This table is used when Encrypting and Decrypting data. All stations, including this Access Point, always transmit data encrypted using their default key. The key number (1, 2, 3, 4) is also transmitted. The receiving station will use the key number (1, 2, 3, 4) to determine which key value to use for decryption. If the key value does not match the transmitting station, decryption will fail. The easiest way to ensure there are no problems is to have every Station, including the Access Point, use the same key table (all entries identical). Then, it does not matter which key is used as the default key.
128 Bit	If selected, data is encrypted using the key before being transmitted. The receiving station must be set to use 128 Bit Encryption, and have the same Key value. Otherwise, it will not be able to decrypt the data.

WEP Authentication	Options are "Open System" or "Shared Key". Some Wireless cards and Access Points do not support both methods. Check your documentation to determine the correct value to use.

Link Info Screen



Wireless Link Info

Field	Description
State	This indicates which access point is currently in use.
Current Channel	The current channel which has been used.
Current TX Rate	The current transmitting speed.
Throughput (Tx)	This will show how much data has been transmitted per second.
Throughput (Rx)	This will show how much data has been received per second.
Link Quality	This indicates the quality of the Wireless connection
Signal Strength	This indicates the strength of the Wireless signal being received.

7-3 Menu Options

The NetGear Administration program contains a menu bar that provides a number of options including Control, Printer, and Help, which are outlined in the following section.

Control Menu

Control is the first item on the top menu bar is for print server control. Click on the Control selection, move the cursor down to select one of the menu selections and click again to carry out the intended action, as described below.

- **Device Information**

  Select this option to pop up a scrolling window providing a status of the various parameters on the print server that can be customized. This information includes the various NetBEUI and TCP/IP parameters.

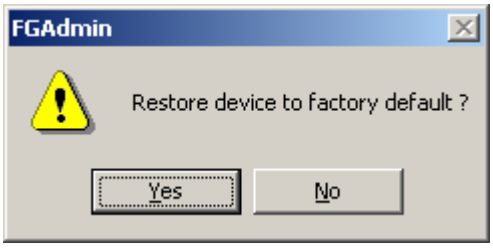
Device Information

- **Reset Device**

  Issues a soft reset to reboot the print server. This process allows newly modified print server parameters to take effect.

- **Restore Default Configuration**

  Changes all print server parameters to their factory default values. If only partial restoration is intended, use the tab options for the different protocols and choose "Set to Default" from that particular screen. A confirmation dialog, like the example below, will be shown.

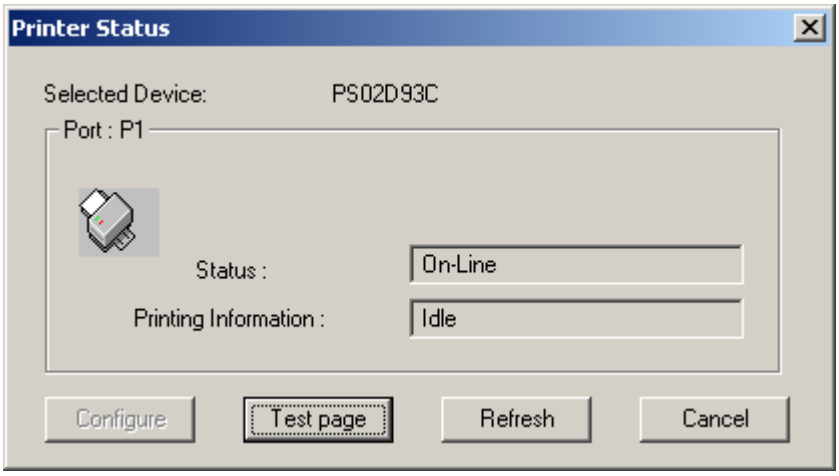


Default Configuration

Click "Yes" to confirm setting to factory defaults, or "No" to leave the current configuration unchanged.

Printer Menu

Individual printer ports are displayed as options under the Printer Menu, and a pop-up window opens when any of the printer ports are selected, as in the example below.



Printer Status

The printer ports not existing on the print server are shadowed or grayed out.
On the popup window, you can check the connection status of the print server such as on-line, off-line, paper jam, and out-of-paper. Also on display is the printing information indicating if the print server is sending data to the printer or if the printer is idling. At the bottom of the screen are four buttons as described below.

Printer Status

Field	**Description**
Configure Button	If the connected printer supports directional communication such as many of the new Hewlett-Packard LaserJet and DeskJet printers, you can click on this button to customize the various printing parameters of the printer. The pop-up window consists of a table with the following column headings: Environment Variable The configuration variables available on this printer. The list of printer configuration variables vary from printer to printer. Variable Value Displays the current setting. To change the Variable Value (if Read Only is NO) double- click the line

	you wish to change; then enter or select a new value. Read Only Indicates whether or not the Environment Variable is modifiable.
Test page Button	Informs the print server to send a test page to the printer. The printout includes print server status information, which is useful when troubleshooting any printing problems.
Refresh Button	If you suspect that the printer status is not properly updated on the screen, click this button to generate packets to collect updated printer information.
Cancel Button	Close this pop-up window.

Help Menu

The Help menu has a single item - About - which will display information about the program, as shown below.

About NETGEAR Print Server Administration Program
NETGEAR Print Server Administration Version 2.20
Copyright (C) 2001
OK

Help - About

Configuring Using IP Setup

IP Setup is a tool to let you configure the IP address for NETGEAR Print Server in Microsoft Windows environment. Please see Appendix E for IPSetup utility reference.
With IPSetup tool, you can force an IP address to a NETGEAR Print Server. It sets up the subnet mask and default gateway as well as disables the DHCP. In this way, you can always get a known and fixed IP address.

Appendix A Technical Specifications

This appendix provides technical specifications for the NETGEAR Model PS111W Print Server.

General Specifications

Network Protocol and Standards Compatibility

IEEE 802.3u, 100BASE-TX, Fast Ethernet
IEEE 802.3i 10BASE-T CSMA/CD
IEEE 802.11b 11Mbps maximum CSMA/CA
NetBEUI, IPX/SPX, and TCP/IP protocols

Data Rate

100 Mbps with 4B/5B encoding and MLT-3 physical interface
10 Mbps differential Manchester encoded
11Mbps wireless

Interface

PS111W Print Server: One 10BASE-T/100BASE-TX network port (RJ-45)

Power Specifications for the Power Adapter

Input voltage: 100 to 240 V AC, 50 to 60 Hz, according to the power adapter

Localized plug: For North America, Japan, UK, Europe, and Australia

Output voltage: 12 V DC at 800 mA

Power Specifications for the Print Server

Power consumption: 7 W maximum

Input voltage: 12 V DC at 0.8-1.2 Amps, maximum

Physical Specifications

Width: 7.4 in. (18.9 cm)

Height: 1.2 in. (3.0 cm)

Depth: 4.8 in. (12.2 cm)

Weight: 1.61 lb (0.73 kg)

Environmental Specifications

Operating temperature: 0 °to 40 °C (32 °to 104 °F)

Operating humidity: 90% maximum relative humidity, noncondensing

Electromagnetic Emissions

Meets requirements of: CE mark, commercial

FCC Part 15, Class B

EN 55 022 (CISPR 22), Class B

VCCI Class B ITE

Safety Agency Approvals, Power Adapter

Meets requirements of: CE mark, commercial

UL listed (UL 1950)

CSA certified (CSA 22.2 #950)

TUV licensed (EN 60 950)

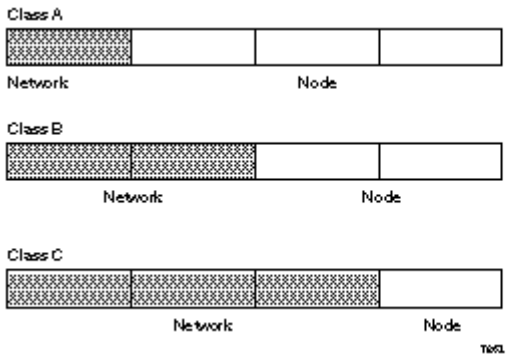
T-Mark

Appendix B Understanding IP Addresses

This appendix provides information about understanding IP addresses, which you must assign to the NETGEAR PS100 series Print Sever when operating in a TCP/IP environment.

IP Addresses and the Internet

Because TCP/IP networks are interconnected widely across the world, every machine on the Internet must have a unique address to make sure that transmitted data reaches the correct destination. Blocks of addresses are assigned to organizations by the Internet Assigned Numbers Authority (IANA). Individual users and small organizations may obtain their addresses either from the IANA or from an Internet service provider (ISP).
The Internet Protocol (IP) uses a 32-bit address structure. The address is usually written in dot notation (also called dotted-decimal notation), in which each group of eight bits is written in decimal form, separated by decimal points. For example, the binary address:
11000011 00100010 00001100 00000111
is normally written as:
195.34.12.7
which is easier to remember and easier to enter into your computer.
In addition, the 32 bits of the address are subdivided into two parts. The first part of the address identifies the network, and the second part identifies the host node or station on the network.
The dividing point may vary depending on the address range and the application.
There are five standard classes of IP addresses. These address classes have different ways of determining the network and host sections of the address, allowing for different numbers of hosts on a network. Each address type begins with a unique bit pattern, which is used by the TCP/IP software to identify the address class. After the address class has been determined, the software can correctly identify the host section of the address. The three main address classes are illustrated below, which shows the network and host sections of the address for each address type.



Three Main Address Classes

Class A addresses can have up to 16,777,214 hosts on a single network. They use an 8-bit network number and a 24-bit node number. Class A addresses are in this range:
1.x.x.x to 126.x.x.x.

Class B addresses can have up to 65,354 hosts on a network. Class B addresses use a 16-bit network number and a 16-bit node number. Class B addresses are in this range:
128.1.x.x to 191.254.x.x.
Class C addresses can have 254 hosts on a network. Class C addresses use 24 bits for the network address and 8 bits for the node. They are in this range:
192.0.1.x to 223.255.254.x.
Class D addresses are used for multicasts (messages sent to many hosts). Class D addresses are in this range:
224.0.0.0 to 239.255.255.255.
Class E addresses are for experimental use.
This addressing structure allows IP to uniquely identify each physical network and each node on each physical network.
For each unique value of the network portion of the address, the base address of the range (host address of all zeros) is known as the network address and is not usually assigned to a host. Also, the top address of the range (host address of all ones) is not assigned but is used as the broadcast address for sending a packet simultaneously to all hosts with the same network address.

Netmask

In each of the above address classes, the size of the two parts (network address and host address) is implied by the class. This partitioning scheme can also be expressed by a netmask associated with the IP address. A netmask is a 32-bit quantity that, when logically ANDed with an IP address, yields the network address. For instance, the netmasks for Class A, B, and C addresses are 255.0.0.0, 255.255.0.0, and 255.255.255.0, respectively.
For example, the address 192.168.170.237 is a Class C IP address whose network portion is the upper 24 bits. When ANDed with the Class C netmask, as shown here, only the network portion of the address remains:
11000000 10101000 10101010 11101101 (192.168.170.237)
ANDed with:
11111111 11111111 11111111 00000000 (255.255.255.0)
Equals:
11000000 10101000 10101010 00000000 (192.168.170.0)
As a shorter alternative to dotted-decimal notation, the netmask may also be expressed in terms of the number of ones from the left. This number is appended to the IP address, following a backward slash (/), as "/n." In the example, the address could be written as 192.168.170.237/24, indicating that the netmask is 24 ones followed by 8 zeros.

Subnet Addressing

By looking at the addressing structures, you can see that even with a Class C address there are a large number of hosts per network. Such a structure is an inefficient use of addresses if each end of a routed link requires a different network number. It is unlikely that the smaller office LANs would have that many devices. You can resolve this problem by using a technique known as subnet addressing.
Subnet addressing allows us to split one IP network address into smaller multiple physical networks known as subnetworks. Some of the node numbers are used as a subnet number instead. A Class B address gives us 16 bits of node numbers translating to 64,000 nodes. Most organizations do not use 64,000 nodes, so there are free bits that can be reassigned. Subnet addressing makes use of those bits that are free, as illustrated below.

Example of Subnetting a Class B Address

A Class B address can be effectively translated into multiple Class C addresses. For example, the IP address of 172.16.0.0 is assigned, but node addresses are limited to 255 maximum, allowing 8 extra bits to use as a subnet address. The IP address of 172.16.97.235 would be interpreted as IP network address 172.16, subnet number 97, and node number 235. In addition to extending the number of addresses available, subnet addressing provides other benefits. Subnet addressing allows a network manager to construct an address scheme for the network by using different subnets for other geographical locations in the network or for other departments in the organization.
Although the preceding example uses the entire third octet for a subnet address, note that you are not restricted to octet boundaries in subnetting. To create more network numbers, you need only shift some bits from the host address to the network address. For instance, to partition a Class C network number (192.68.135.0) into two, you shift 1 bit from the host address to the network address. The new netmask (or subnet mask) is 255.255.255.128. The first subnet has network number 192.68.135.0 with hosts 192.68.135.1 to 129.68.135.126, and the second subnet has network number 192.68.135.128 with hosts 192.68.135.129 to 192.68.135.254.

	• The number 192.68.135.127 is not assigned because it is the broadcast address of the first subnet. And 192.68.135.128 is not assigned because it is the network address of the second subnet.

The table below lists the additional subnet mask bits in dotted-decimal notation. To use the table, write down the original class netmask and replace the 0 value octets with the dotted-decimal value of the additional subnet bits. For instance, to partition your Class C network 204.247.203.0 with subnet mask 255.255.255.0 into 16 subnets (4 bits), the new subnet mask becomes 255.255.255.240.

Netmask Notation Translation Table for One Octet

Number of Bits	Dotted-Decimal Value
1	128
2	192
3	224
4	240
5	248

6	252
7	254
8	255

The next table displays several common netmask values in both the dotted-decimal and the masklength formats.

Netmask Formats

Dotted-Decimal	Masklength
255.0.0.0	/8
255.255.0.0	/16
255.255.255.0	/24
255.255.255.128	/25
255.255.255.192	/26
255.255.255.224	/27
255.255.255.240	/28
255.255.255.248	/29
255.255.255.252	/30
255.255.255.254	/31
255.255.255.255	/32

NETGEAR strongly advises that all hosts on a LAN segment use the same netmask for the following reasons:

So that hosts recognize local IP broadcast packets

> When a device broadcasts to its segment neighbors, it uses a destination address of the local network address with all ones for the host address. In order for this scheme to work, all devices on the segment must agree on which bits comprise the host address.

So that a local router or bridge will know which addresses are local and which are remote

Private IP Addresses

If your networks are isolated from the Internet (for example, only between your two branch offices), you can assign any IP addresses to the hosts without problems. However, the IANA has reserved the following three blocks of IP addresses specifically for private networks:

10.0.0.0 - 10.255.255.255
172.16.0.0 - 172.31.255.255
192.168.0.0 - 192.168.255.255

NETGEAR recommends that you choose your private network number from this list.
Regardless of your particular situation, do not create an arbitrary IP address; always follow the guidelines explained here. For more information about address assignment, refer to RFC 1918, *Address Allocation for Private Internets,* and RFC 2050, *Guidelines for Management of IP Address Space* .

Address Resolution Protocol

An IP address alone cannot be used to deliver data from one device to another on a LAN. In order for data to be sent from one device on the LAN to another, you must convert the IP address of the destination device to its media access control (MAC) address. Each device on an Ethernet network has a unique Ethernet MAC address, which is a 48-bit number assigned to each device by the manufacturer. The technique that associates the IP address with a MAC address is known as address resolution, and IP uses the Address Resolution Protocol (ARP) to do this.
If a device needs to send data to another station on the network and it does not already have the destination MAC address recorded, ARP is used. An ARP request is broadcast onto the network, and all stations receive and read the request. The destination IP address for the chosen station is included as part of the message so that only the station with this IP address responds to the ARP request and all other nodes discard it.
The node with the right IP address responds with its own MAC address directly to the sender, providing the transmitting station with the destination MAC address needed for it to send the data. The IP address data and MAC address data for each node are held in an ARP table, so that the next time data needs to be sent, the address can be obtained from the address information in the table.

IP Configuration by DHCP

When an IP-based local area network is installed, each workstation must be configured with an IP address. If the workstations need to access the Internet, they should also be configured with a gateway address and one or more DNS server addresses. As an alternative to manual configuration, there is a method by which each device on the network can obtain this configuration information automatically. A device on the network may act as a Dynamic Host Configuration Protocol (DHCP) server. The DHCP server stores a list or pool of IP addresses, along with other information (such as gateway and DNS addresses) that it may assign to the other devices on the network. The NETGEAR Model RT328/RH348 router has the capacity to act as a DHCP server.

Appendix C CONFIG File

This appendix provides information for editing a CONFIG file. CONFIG files are stored in the flash EEPROM of the NETGEAR PS100 series Print Sever and used for configuring the device using the FTP method. For more information about using the CONFIG file and to see an example of FTP commands, refer to the table of FTP Commands"on chapter 5 Unix. Only the parameters related to TCP/IP operation of the print server are listed.
For modification of the various NetWare IPX/SPX and NetBEUI settings, NETGEAR recommends that you use the included NETGEAR Print Server Administration Program or the PSCONFIG program.

CONFIG File TCP/IP Settings

When modifying the CONFIG file, use the configuration settings outlined below.

Configuration Settings

Parameter and Command	Definition
Device Name (0001 BOX_NAME)	The default name of the print server is PSxxxxxx (PS followed by 6 numbers). You can change this, but the new name must not exceed 19 characters and must not include any spaces.
TCP/IP Protocol (0012 TCPIP_P)	Enables or disables reception or transmission of TCP/IP packets.
IP Address (4000 IP_ADDR)	This is the IP address for your print server. For more information about IP addressing, refer to See Understanding IP Addresses."
Device IP Address (4001 GATEWAY)	If your network segment has a router, enter the router address here. If there is no router, leave the address as 0.0.0.0.
Subnet Mask (4002 MASK)	If the Gateway Address is 0.0.0.0, leave the Subnet Mask at 0.0.0.0. If you have a router, enter the Subnet mask for the segment to which the print server is attached.
TCP Session Retry Interval (4010 TCP_INT)	Sets how long the print server should wait before retrying a TCP/IP connection that is lost. Allowable values are from 0 to 255 seconds, with 2 as the default.
Retry Count (4011 TCP_CNT)	Sets how many attempts for reconnection will be made. After attempting the set number, the TCP/IP session is terminated. Allowable values are from 0 to 255, with 254 as the default.
L1 Logical Printer Mapping (0100 L1_PROUT)	The physical port that this L1 logical printer maps to.
String Before Job for L1 Logical Printer (0101 L1_PREST)	The L1 logical printer control string (in hex) to be sent to the printer before each print job. Note: A printer control string is limited to 15 characters. Examples are: ASCII = [Esc]&l0O Hexadecimal = 1B266C304F ASCII = [Esc]&l1O Hexadecimal = 1B266C314F
String After Job (0102 L1_POSTR)	The L1 logical printer control string (in hex) to be sent to the printer after each print job. Note: A printer control string is limited to 15 characters. Examples are: ASCII = [Esc]&l0O Hexadecimal = 1B266C304F ASCII = [Esc]&l1O Hexadecimal = 1B266C314F
Convert LF to CR+LF (0103 L1_CHGLF)	If On, LF (line feed) characters are changed to CR+LF (carriage return + line feed). If off, no conversion is done.

Each Model PS104 and Model PS105 Print Server has one parallel port and supports three logical printers. PS100 series Print Sever, with two and three parallel ports respectively, supports eight logical printers. You cannot change the names. Each logical printer has four settings as shown below.
Refer to the next table for the line numbers of the logical printers in the CONFIG file.

CONFIG File Line Numbers

Logical Printer	Line Numbers
L1	0100 to 0103
L2	0120 to 0123
L3	0140 to 0143
L4	0160 to 0163
L5	0180 to 0183
L6	0200 to 0203
L7	0220 to 0223
L8	0240 to 0243

Appendix D Using NetWare 5 NDPS

This appendix provides an overview of using the Print Server with NDPS (Novell Distributed Printing Services) under Novel NetWare 5.0.

Overview

The NETGEAR Print Server must be configured as a valid device on your TCP/IP network. To use NDPS (Novell Distributed Printing Services), the Novell server must be running Novell NetWare 5, and the PCs (clients) must be running IntranetWare Client 2.0 or later.
The following procedure is designed to enable Public Access Printing under NDPS. Public Access Printing allows anybody on the network to access the printer. The procedure has three parts:

- Create an NDPS Manager Object on the server.
- Create an NDPS Printer Agent on the server.
- Configure each workstation requiring access to the NDPS printers.

Creating an NDPS Manager Object

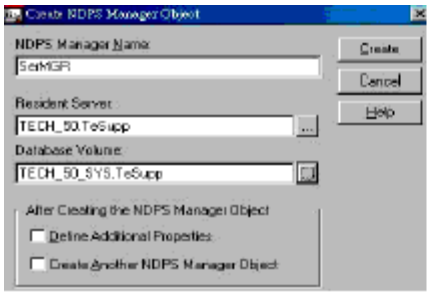
To create an NDPS manager object:

Log in to NetWare 5.0 Server as Admin and start the NetWare Administrator program Nwadmn32.exe.

Select the container on NetWare Administrator where you want the NDPS Manager object to reside (for example, TeSupp).

Select Create - Object from the menu bar to view the New Object dialog.

Select NDPS Manager as the object to create. The Create NDPS Manager Object window, as illustrated in below.



Create NDPS Manager Object

Create NDPS Manager Object Window

Type a name in the NDPS Manager Name.

Browse the Resident Server and select where you want the NDPS Manager object to be assigned.

Browse the Database Volume and select where you want the NDPS Manager database to be assigned.

Click on Create.

The new NDPS Manager is displayed in the main browser window.

To start the NDPS Manager in future, enter the following command at the console:

```
LOAD NDPSM
```

Then select the NDPS Manager object.

To start the NDPS Manager whenever you bring up the server, add a command like the following to your server's AUTOEXEC.NCF file:

```
LOAD NDPSM SerMGR.TeSupp
```

The last item is the name of the NDPS Manager object you want to load.

After creating an NDPS Manager, you can create NDPS printers by using NetWare Administrator, which is explained in the following section.

Creating an NDPS Printer Agent

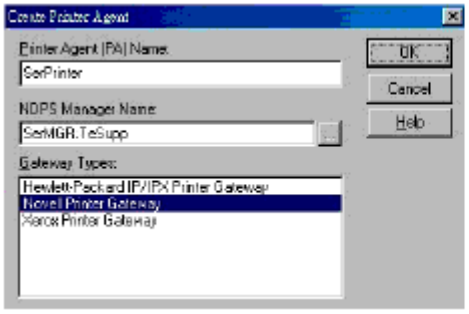
To create Public Access Printers using the NDPS Manager Object in NetWare Administrator, follow these instructions. You will need to repeat the procedure for any other ports on the print server or for any other logical printers you want to use.

To create an NDPS printer agent:

Start the NDPS Manager object you will be using to control the Printer Agent.

At the Identification page, click on the Printer Agent List.

Click on New to see the Create Printer Agent window, as illustrated below.



Create Printer Agent

Create Printer Agent Window

Enter the name you want for the Printer Agent (PA) Name.

The NDPS Manager will be the NDPS Manager object you are using.

Select Novell Printer Gateway In the Gateway Type.

Click on OK, and then select the available printer.

Select Remote (LPR on IP) in the Connection Type.

Click on Next to view the Configure Port Handler Screen.

In the Host Address IP field, enter the IP address previously assigned to the Print Server device, as illustrated below.

Configure Port Handler

Configure Port Handler Window

In the Printer Name field, enter the Logical Port name on the Print Server (for example, L1).

	• For print servers with one parallel port, the logical ports are named L1, L2, and L3. For devices with two or three parallel ports, the logical ports are named L1 to L8.

Click Finish; then select appropriate drivers for Windows 95, Windows 98, Windows NT 4, and Windows 2000.

The new printer agent will now appear in the Printer Agent List window.

Workstation Configuration

Before installation and configuration of the Public Access Printers on your workstation, ensure that the following statements apply:

Novell IntranetWare Client v2.2 (or later) is installed on your PC.

You have access to the Novell Printer Manager utility (Nwpmw32.exe).

Installing and Configuring the Public Access Printers

To install and configure public access printers:

Start the Novell Printer Manager utility.

Select Printer>New from the menu, and click on Add.

Select the required printer and click on Install.

Click on Close.

The printer appears in the main Printer Manager window under the Name listing and is now available for print jobs. Printer drivers are automatically downloaded from the server as required.

The printer is now in your Windows printer list and may be used by any Windows application.

Appendix E IP Setup

This appendix provides a brief overview of IP addressing.

Overview

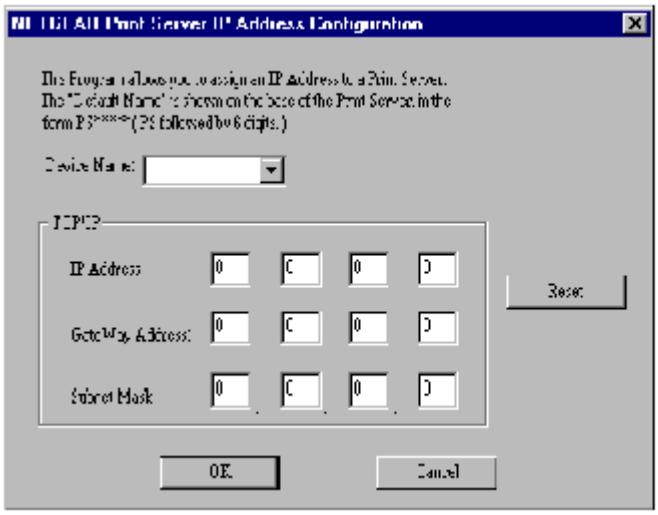
This appendix is intended only when the user has inadvertently disabled the DHCP protocol and/or assigned a wrong subnet IP address. Refer to See IP Configuration Settings to assign a static IP address.

The following table describes each setting.

IP Configuration Settings

Setting	Recommended Value
Device Name	Shown on a sticker on the base of the device in the form "PSxxxxxx."
Device IP Address	192.168.0.1
Gateway IP Address	0.0.0.0
Subnet Mask	0.0.0.0.

Clicking on Reset will set all values back to zero, and clicking on OK sets the data entered.
Ensure that the IP address assigned to the device is not already in use.
Following picture is the NETGEAR Print Server IP Address Configuration window.



NETGEAR Print Server IP Address Configuration

Appendix F ASCII to Hexadecimal Conversion Table

Hexadecimal Value	ASCII Character
0	NUL
1	SOH
2	STX
3	ETX
4	EOT
5	ENQ
6	ACK
7	BEL
8	BS
9	HT
A	LF
B	VT
C	FF
D	CR
E	SO
F	SI
10	DLE
11	DC1
12	DC2
13	DC3
14	DC4
15	NAK
16	SYN
17	ETB
18	CAN
19	EM
1A	SUB
1B	ESC
1C	FS
1D	GS
1E	RS
1F	US
20	(SPACE)
21	!
22	"
23	#
24	$
25	%
26	&
27	'
28	(
29	)
2A	*
2B	+

2C	,
2D	-
2E	.
2F	/
30	0
31	1
32	2
33	3
34	4
35	5
36	6
37	7
38	8
39	9
3A	:
3B	;
3C	<
3D	=
3E	>
3F	?
40	@
41	A
42	B
43	C
44	D
45	E
46	F
47	G
48	H
49	I
4A	J
4B	K
4C	L
4D	M
4E	N
4F	O
50	P
51	Q
52	R
53	S
54	T
55	U
56	V
57	W
58	X
59	Y
5A	Z
5B	[
5C	\
5D	]

5E	^
5F	_
60	`
61	a
62	b
63	c
64	d
65	e
66	f
67	g
68	h
69	I
6A	j
6B	k
6C	l
6D	m
6E	n
6F	o
70	p
71	q
72	r
73	s
74	t
75	u
76	v
77	w
78	x
79	y
7A	z
7B	{
7C	|
7D	}
7E	~
7F	